National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service

Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

NL-339 (r. 88/04) c

Canada

UNIVERSITY OF ALBERTA

PRAGMATIC LANGUAGE COMPETENCIES OF HEARING IMPAIRED PRESCHOOL CHILDREN

BY

RODNEY GORDON BEATTIE

©

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN
SPECIAL EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA
SPRING 1990

National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service

Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

ISBN 0-315-60374-7

NL-339 (r. 88/04) c

Canada

micro

UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: RODNEY GORDON BEATTIE

TITLE OF THESIS: PRAGMATIC LANGUAGE COMPETENCIES OF HEARING IMPAIRED PRESCHOOL CHILDREN

DEGREE: DOCTOR OF PHILOSOPHY

YEAR THIS DEGREE GRANTED: SPRING 1990

PERMISSION IS HEREBY GRANTED TO THE UNIVERSITY OF ALBERTA LIBRARY TO REPRODUCE SINGLE COPIES OF THIS THESIS AND TO LEND, OR SELL SUCH COPIES FOR PRIVATE, SCHOLARLY, OR SCIENTIFIC RESEARCH PURPOSES ONLY.

THE AUTHOR RESERVES OTHER PUBLICATION RIGHTS, AND NEITHER THE THESIS NOR EXTENSIVE EXTRACTS FROM IT MAY BE PRINTED OR OTHERWISE REPRODUCED WITHOUT THE AUTHOR'S WRITTEN PERMISSION.

Rod Beattie

PERMANENT ADDRESS:

1702, 10011 - 116 STREET
EDMONTON, ALBERTA
T5K 1V4

DATED: 90/03/12

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

THE UNDERSIGNED CERTIFY THAT THEY HAVE READ, AND RECOMMENDED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH FOR EXCEPTANCE, A THESIS ENTITLED PRAGMATIC LANGUAGE COMPETENCIES OF HEARING IMPAIRED PRESCHOOL CHILDREN SUBMITTED BY RODNEY GORDON BEATTIE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN EDUCATIONAL PSYCHOLOGY.

Dr. G. M. Kysela (Supervisor)

Dr. L. R. Wilgosh

Dr. H. G. Ilott

Dr. K. Gough

P. T. Leslie

Dr. P. T. Leslie

DATED: 90/01/15

Abstract

This study investigated the pragmatic language competencies of eight hearing impaired preschool children. An organizational framework by Roth and Spekman (1984a/b) was presented and described, used to organize the literature review, and formed the basis of the data collection procedures and the development and/or refinement of the research questions and instruments. Six Oral program children between the ages of 3.3 and 5.10 years, and two Sign Assist program children of approximately 4.7 years of age were chosen as subjects. The subjects' language samples were videotaped within their classrooms while participating in Lesson and Snack activities. The two 20 minute language samples per subject were transcribed after being scored on two general protocols to establish environmental parameters and basic profile information. The transcripts became the basis for evaluating the pragmatic language skills using four checklists which scaffold the organizational framework. The subjects' skills with communicative intentions supported the findings of previous researchers by demonstrating a range similar to hearing children with a variety of form strategies. The study of presupposition indicated: (a) strong message information skills; (b) minimal use of deictics, articles, and cohesive structures; and (c) a developed sensitivity to the communicative partner and social context. The study of social organization of discourse found the subjects': (a) intentions to be primarily social; (b) turntaking skills similar to previous studies; (c) conversational skills reflecting strong skills at maintenance and less developed skills at initiation, termination, and shift; and (d) general weakness at conversational repair. The results reveal the need for more exploratory research and a series of focused investigations addressing the relationship between pragmatic language competencies, method of communication, and the teaching/educational environment.

ACKNOWLEDGEMENT

I wish to express my sincere appreciation to the following people who contributed to this project...

To Dr. G. Kysela, my thesis supervisor, for your advice and direction.

To Dr. H. Ilott, Dr. L. Wilgosh, and Dr. K. Gough as member of my dissertation committee, for your interest, knowledge, and especially for your ideas on presentation and alternative ways of viewing the issues.

To Dr. P. Leslie of the University of British Columbia for serving as the external examiner.

To Dr. M. Rodda, for your interest, involvement, and direction as Advisor and Chairman of the candidacy examination committee.

To S. McClain, for your support of this project.

To K. Brinton, M. McClinton, M. Winton, P. Juno, B. Olasker, S. Goodman, and E. Lobe-Miller for your significant contributions.

To S1 through 8 and their parents--for without you this study would not exist.

To L. Stainton, B. Henschel, and P. Hill of Educational Consultants for the Sensory Impaired for supplying the video equipment.

To S. Yarwood for easing the traumas of reliability checks and proof reading.

To Mom, Dad, and C. A. for your support, and understanding.

To T. Lohela, K. Muttart, S. White, K. Maertz, M. Olsen, M. Tuchscherer, B. and B. Herbert just because you should be mentioned.

To K. Browning, C. Chidlow, L. Sargent, M. Slipchuk and the other skaters of Edmonton who give me the best mental diversion ever.

And finally, to the test chairpersons in and around Edmonton, for without you I could have finished two years ago.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION - - - 1
- A. Background and Rationale for the Study - - - 1
- B. Objectives - - - 5
- C. Overview of the Study - - - 6
- D. Definition of Terms - - - 7

II. REVIEW OF THE LITERATURE - - - 9
- A. Introduction - - - 9
- B. Perspective of the Organizational Framework - - - 9
  - Communicative Intentions - - - 11
  - Presupposition - - - 14
  - Social Organization of Discourse - - - 17
  - Context - - - 18
- C. Research with Hearing Impaired Children - - - 18
  - Studies of Communicative Intentions - - - 19
  - Studies of Presuppositional Skills - - - 25
  - Studies of Social Organization of Discourse Skills - - - 26
  - Conclusions from the Review - - - 28
- D. Summary - - - 30
  - Theoretical Basis - - - 30
  - Implications Identified in the Literature - - - 31
  - Recommendations of Researchers - - - 32
  - Research Questions Stemming from Review - - - 33

CHAPTER PAGE

III. METHODOLOGY - 35

A. Introduction - 35

B. Research Design - 35

C. Subjects - 36

Locating Subjects - 36

Permission to Participate - - - - - - - - - - - - - - - - - - 37

Characteristics of Subjects - - - - - - - - - - - - - - - - - 37

D. Collection of Language Samples - - - - - - - - - - - - - - - - - 40

Schedule of Recording Sessions - - - - - - - - - - - - - - - 40

Recording Session Parameters - - - - - - - - - - - - - - - - 41

Equipment - 43

Editing - 43

E. Instruments and Data Analysis - - - - - - - - - - - - - - - - - 44

Order of Analysis - 44

Pretranscription Protocols - - - - - - - - - - - - - - - - - 44

Transcription - 47

Posttranscription Checklists - - - - - - - - - - - - - - - - 48

F. Observer Training and Reliability - - - - - - - - - - - - - - - 50

Protocols - 50

Transcription - 52

Checklists - 53

G Internal and External Validity - - - - - - - - - - - - - - - - - 55

Threats to Internal Validity - - - - - - - - - - - - - - - - - 55

Threats to External Validity - - - - - - - - - - - - - - - - - 56

CHAPTER PAGE

H. Limitations of Study - 58

I. Summary - 58

IV. RESULTS - 59

A. Introduction - 59

B. General Assessment Protocol (GAP) - - - - - - - - - - - - - - - 59

Summary of Results--GAP - - - - - - - - - - - - - - - - - - 61

C. Pragmatic Protocol (PP) - 62

Summary of Results--PP - - - - - - - - - - - - - - - - - - - 66

D. Communicative Intentions--Range (CI Range) - - - - - - - - - - 67

Summary of Results--CI Range - - - - - - - - - - - - - - - - 74

E. Communicative Intentions--Form (CI Form) - - - - - - - - - - - 75

Summary of Results--CI Form - - - - - - - - - - - - - - - - 80

F. Presupposition Checklist (PC) - - - - - - - - - - - - - - - - - - 80

Informativeness - 81

Communicative Partner - 90

Social Context - 92

Summary of Results--Presupposition - - - - - - - - - - - - - 94

G. Social Organization of Discourse Checklist (SODC) - - - - - - - - 96

Social/Nonsocial Speech - - - - - - - - - - - - - - - - - - - 96

Turntaking/Talking Time - - - - - - - - - - - - - - - - - - - 98

Conversational Skills - 99

Breakdown/Repair Sequences - - - - - - - - - - - - - - - - - 113

Summary of Results--Social Organization of Discourse - - - - 116

CHAPTER PAGE

V. DISCUSSION AND SUMMARY - 118

A. Introduction - 118

B. Discussion of the Results - 119

The Protocols - 119

Communicative Intentions--Range (CI Range) - - - - - - - - 124

Communicative Intentions--Form (CI Form) - - - - - - - - - 125

Presupposition Skills - 127

Social Organization of Discourse Skills - - - - - - - - - - - - 132

C. Implications for Pedagogical Practice - - - - - - - - - - - - - - 139

D. Suggestions for Future Research - - - - - - - - - - - - - - - - - 142

E. Concluding Remarks - 145

REFERENCES - 148

APPENDIX A. LETTER OF PERMISSION - - - - - - - - - - - - - - - - - - 155

APPENDIX B. SCHEDULE--COLLECTION OF LANGUAGE SAMPLES - - - - - - 157

APPENDIX C. GENERAL ASPECTS PROTOCOL (GAP) - - - - - - - - - - - - - 159

APPENDIX D. PRAGMATIC PROTOCOL (PP) - - - - - - - - - - - - - - - - 162

APPENDIX E. TRANSCRIPTION GUIDELINES - - - - - - - - - - - - - - - - 172

APPENDIX F. EXAMPLES OF TRANSCRIPTS - - - - - - - - - - - - - - - - 175

APPENDIX G. COMMUNICATIVE INTENTIONS--RANGE (CI-RANGE) - - - - - 178

APPENDIX H. COMMUNICATIVE INTENTIONS--FORM (CI-FORM) - - - - - - 185

APPENDIX I. PRESUPPOSITION CHECKLIST (PC) - - - - - - - - - - - - - 188

APPENDIX J. SOCIAL ORGANIZATION OF DISCOURSE CHECKLIST (SODC) - - 197

LIST OF TABLES

TABLE 1. Communicative Intentions (CIs) as Described by Day (1986) - - 13
TABLE 2. Summary of Studies Investigating CIs in Hearing Impaired Children - 20
TABLE 3. Subject Characteristics - 39
TABLE 4. Interrater Reliability for the General Aspect Protocol (GAP) - - - 51
TABLE 5. Interrater Reliability for the Pragmatic Protocol (PP) - - - - - 52
TABLE 6. Percentage Reliability for the Identification/Transcription of CIs - - - - - - - - - - - - - - - - 53
TABLE 7. Interrater Reliability for the Checklists - - - - - - - - - - - - - - 54
TABLE 8. Results of the General Aspect Protocol (GAP) - - - - - - - - - - 60
TABLE 9. Percentage and Number of Pragmatic Parameters Marked Appropriate or Inappropriate for Each Subject in the Three Age Groups and Two Linguistic Environments - - - - - - - - 63
TABLE 10. Pragmatic Parameters Most Frequently Marked Inappropriate for the Group of Subjects - 66
TABLE 11. Number and Percentage of CIs Found in Each of the Range Categories - 70
TABLE 12. Subjects' Production of CIs in Each Range Category--Combined Lesson and Snack Contexts - 71
TABLE 13. Percentage of Sample and Rank Order for Major Categories of CIs for Each Subject - 73
TABLE 14. Use of Deictics by Each Subject - - - - - - - - - - - - - - - - - 87

LIST OF TABLES (continued)

TABLE 15. Use of Articles, Production Characteristics and Context of Occurrence for Each Subject - - - - - - - - - - - - - - - - - - 88

TABLE 16. Subjects' Use of Cohesive Structures in the Lesson and Snack Contexts - 89

TABLE 17. Subjects' Insensitivities to Communicative Partner - - - - - - - - 92

TABLE 18. Number of Sensitive and Insensitive CIs to the Social Context Variable of Feedback Channel - - - - - - - - - - - - - - - - - - - 93

TABLE 19. Subjects' CIs Per Minute in the Lesson, Snack, and Combined Context - 99

TABLE 20. Rank Order of Subjects' Use of Conversational Skill Categories in the Lesson and Snack Contexts - - - - - - - - - - - - - - - - - - 101

TABLE 21. Nature and Result of Subjects' Initiation Skills in the Lesson and Snack Contexts - 104

TABLE 22. Nature and Results of Subjects' Maintenance Skills in the Lesson and Snack Contexts - 108

TABLE 23. Number, Nature, and Result of Subjects' Shift Skills - - - - - - - - 111

TABLE 24. Number, Nature, and Result of Subjects' Termination Skills - - - 112

TABLE 25. Number of Breakdowns, the Repair Initiator, and Presence of a Repair Attempt for Each Subject - - - - - - - - - - - - - - - - - - 114

LIST OF FIGURES

FIGURE 1. Organizational framework for assessing pragmatic abilities (Spekman & Roth, 1982) - 10
FIGURE 2. Research design: Subject arrangement - - - - - - - - - - - - - - 38
FIGURE 3. Pragmatic parameters marked inappropriate for the eight subjects in three age groups, and two educational/linguistic environments - 64
FIGURE 4. Subjects' production of CIs in the Lesson and Snack contexts - - 69
FIGURE 5. Subjects' use of Form to express CIs: Lesson and Snack contexts combined - 77
FIGURE 6. Subjects' use of Form to express CIs: Lesson and Snack contexts - 79
FIGURE 7. Box plots summarizing the Message Information content of the subjects' CIs in Lesson and Snack contexts - - - - - - - - 82
FIGURE 8. Message Information rating of subjects' CIs in Lesson and Snack contexts - 83
FIGURE 9. Box plots of the characteristics of of the subjects' CIs for Informative/Clear and Vague/Ambiguous: Group results - - - - 85
FIGURE 10. Characteristics of subjects' CIs for Informative/Clear and Vague/Ambiguous in the Lesson and Snack contexts - - - - - - - - 85
FIGURE 11. Sensitivity of subjects' CIs to audience variables in the Lesson and Snack contexts - - - - - - - - - - - - - - - - - - - 91

LIST OF FIGURES (continued)

FIGURE 12. Subjects' percentage of Social/Nonsocial communicative behavior in the Lesson and Snack contexts - - - - - - - - - - - - 98

FIGURE 13. Subjects' percentage of use of each conversational skill category - 101

FIGURE 14. Forms used to express Initiation CIs in the Lesson and Snack contexts - 102

FIGURE 15. Nature and Result of subjects' Initiations: Lesson and Snack contexts combined - 105

FIGURE 16. Conversational strategies employed by the subjects' to maintain maintain a conversation - 107

FIGURE 17. Nature and Result of Maintenance CIs: Lesson and Snack contexts combined - 109

FIGURE 18. Stem and Leaf display, illustrating the subjects' use of repair strategies - 115

I. INTRODUCTION

This dissertation is a descriptive study designed to investigate the pragmatic language competencies of eight hearing impaired preschool children in the areas of communicative intentions, presupposition, and social organization of discourse. Furthermore, differences in these competencies on the basis of age, method of communication, and educational environment were considered. The background and rationale for the study, the objectives, an overview, and terminology will be presented in this chapter.

A. Background and Rationale for the Study

Traditionally, linguists have viewed, with equal importance, the five aspects of language--syntax, morphology, phonology, semantics, and pragmatics. However, recent theorists have assigned a more important role to pragmatics, and there is increasing evidence to support the usefulness of this perspective from the descriptive and experimental literature (Owens, 1988; Kaiser & Warren, 1988). Owens reports that linguists have found language to be heavily influenced by context, thus, a need to communicate and knowledge of how to communicate, must exist prior to the selection of syntax, morphology, phonology, and semantics.

The knowledge of how to communicate within a context encompasses the area of pragmatics. Muma (1978) defined pragmatics as a set of sociolinguistic rules one knows and uses in determining "who" says "what" to "whom", "why", "when" and "in what situations". With this definition Kaiser and Warren (1981) suggest that pragmatics is a way of describing language, a relatively functional approach that recognizes the use of language in action. Owens (1988) refers to theorists who champion the importance of pragmatics as functionalists. The functionalists see pragmatics as the overall organizing principle of language and it is only when a need to communicate exists that the rules of syntax, morphology, phonology, and semantics are employed to address this need.

As early as 1971 Hymes outlined the importance of a child mastering the rules that underlie how language is used for the purpose of communication. Without the mastery of these pragmatic rules any competencies attained with the phonologic, semantic, and syntactic rules may be significantly restricted. By the mid 1970s Dore (1974), Halliday (1975), Bruner (1975), Bates, Camaioni, and Volterra (1975) and Bates (1976) illustrated the importance of pragmatics in early communication and language with hearing children, by studying the acquisition process. These researchers demonstrated that pragmatics, along with early phonology, is the first psychosociolinguistic component to emerge, and it serves as the foundation for the later development of semantics, syntax, and morphology.

This information on the importance of pragmatics caused a significant re-evaluation of the methods of teaching language and the sequence in which various language components are taught to special needs children. Gallagher and Darnton (1978), Snyder (1978), and Miller (1978) began to study pragmatic skills of language delayed and language disordered children, and Skarakis and Prutting (1977), and Curtiss, Prutting, and Lowell (1979) applied these studies to young hearing impaired children.

Prior to these formal investigations of hearing impaired children's pragmatic language competencies, there was a common belief that such children had deficits in this area. Individuals working with the hearing impaired suggested that difficulties existed in (a) the comprehension and production of speech acts, (b) considering the listener's perspective, (c) taking sufficient communicative responsibility, and (d) monitoring the adequacy of previous messages. These common beliefs also received some support in early research of Hoemann (1972), Schlesinger and Meadow (1972), and Wedell (1975). Hoemann reported that deaf children frequently responded to requests for clarification by signing "can't" or "don't know", while Schlesinger and Meadow found the communicative exchanges between deaf children and their hearing mothers were of shorter duration than exchanges between hearing children and their mothers. Not surprisingly, Wedell reported that the deaf subjects produced very few question forms. Given these commonly held beliefs and early research findings it is easy to see why researchers would be interested in investigating the pragmatic language competencies of hearing impaired children.

Skarakis and Prutting (1977) suggested that the research interests may be motivated by a general need to identify the basic parameters of the hearing impaired child's acquisition of, and competencies in pragmatics, due to observed pragmatic deficiencies. However, Kretschmer and Kretschmer (1978) and Curtiss et al. (1979) also considered more specific reasons for conducting research in this area. Kretschmer and Kretschmer stated that pragmatics is the most logical framework both for examining communication ability and for developing intervention strategies to alleviate communication deficits in hearing impaired infants and preschoolers. Curtiss et al. reinforced this point by illustrating that previous remedial programs had taught syntax in isolated language exercises, but the hearing impaired child's ability to use this knowledge in conversation was still lacking in many instances. "In order to best meet the needs of the hearing impaired preschool child it is important to determine what and how much the young hearing impaired child learning spoken language knows about communication" (p. 548).

To support these positions, Ling (1980) indicated that for the hearing impaired child to master the pragmatic components, as well as the semantic and syntactic components of language, it is essential that the teacher have diagnostic information which assists the formulation of individual speech acquisition programs. Thus, diagnostic tests or procedures to assess pragmatic function need to be developed. Ling also suggested that it is likely that the range and proportion of pragmatic categories developed and used by hearing impaired children will be found to vary according to the type of program in which they are enrolled. "It is quite possible that certain language functions would be more difficult to develop in the classroom than in the home, in group situations than in individual interaction, and of course vice versa" (p. 158).

Nevertheless, in 1981, Spekman concluded that the development of pragmatic skills in handicapped children had not received sufficient attention despite the recognition by practitioners that these children frequently have social interaction difficulties which cannot be directly tied to their other linguistic skills or the amount of language training they have received. Kaiser and Warren (1988) suggested that the rather bleak situation has continued because a concise taxonomy of pragmatic components, the rules governing its use, and the processes that characterize its acquisition are only beginning to be identified and studied in the normal population. Thus, in the absence of a full description of pragmatic competence in the normal child, it is not surprising that the understanding of pragmatic deficits in special populations is very limited.

To this point in time, research on the pragmatic language competencies of young hearing impaired children has primarily focused on the range and form of communicative intentions (Skarakis & Prutting, 1977; Curtiss et al., 1979; Schirmer, 1985; Day, 1986; and Verlaeten, 1985). The hearing impaired preschool child's competencies in the area of presupposition and social organization of discourse have not been reported, but MacKay-Soroka, Trehub, and Thorpe (1987) considered certain features of presupposition and social organization of discourse using referential meaning tasks with hearing impaired school aged children.

Thus, the rationale for this present study involves contributing information on a group of children whose needs in the area of language acquisition have long been recognized as wanting.

B. Objectives

With this background information in mind, the study had both a general and several more focussed objectives. The general objective, as stated in the rationale, involves contributing to the knowledge base of young hearing impaired children's skills in the area of pragmatic language competencies. The specific objectives include: (a) building on the data collection methods of previous researchers such as Skarakis and Prutting (1977), Curtiss et al. (1979), Schirmer (1985), and Day (1986) to expand the knowledge about the hearing impaired child's competencies with communicative intentions; (b) developing new procedures for collecting diagnostic information on a large number of pragmatic language skills, so that the access to information outlined in the Roth and Spekman (1984a/b) organizational framework will be available for hearing impaired preschool children; (c) identifying areas of pragmatic assessment which could assist with subject identification and placement, as suggested by Schirmer (1985) and Day (1986); and (d) providing information on pragmatic competencies which have implications for pedagogical practice with hearing impaired preschool children at either an individual or group level, as suggested by Ling (1980).

Thus, there are several general objectives motivating this investigation of the pragmatic language competencies of hearing impaired preschool children. Together, these objectives, the review of the literature in Chapter II, and the recommendations of previous researchers played significant roles in the eventual choice of the specific research questions which will be outlined in the next chapter.

C. Outline

The review of the literature will be presented in Chapter II. The review will discuss the organizational framework, developed by Roth and Spekman (1984a/b), to address a wide variety of pragmatic language skills. This organizational framework will then be used to present the research which has focussed on the pragmatic language skills of young hearing impaired children. In summary this chapter will consider how the results and recommendations of these studies have been used (a) to formulate the research questions which address the objectives of the present study, and (b) to enhance the previous research methods.

Chapter III will outline the method and procedures which were used to conduct the study. Specifically, the research design, the subject characteristics, and the methods of data collection and analysis, will be discussed in detail along with the procedures undertaken to establish the reliability and validity of the study.

Chapter IV will present the results of the study as they relate to the research questions, and Chapter V will discuss the findings presented in Chapter IV with suggestions for pedagogical practice and future research in the area.

D. Definition of Terms

As introduced in the overview, this study focuses on preschool hearing impaired children's linguistic competencies in the area of pragmatics. Several terms will be defined at this time to clarify their application in this study.

Pragmatics is the component of language concerned with language use within a communicative context. Thus, this study focuses on those rules which govern the use of language in the social context of the classroom.

Given this definition and the organizational framework of Spekman and Roth (1982), it is important to present several other terms which will occur frequently in this study since the framework divides these pragmatic rules into three areas--communicative intentions, presupposition, and social organization of discourse.

Communicative Intentions (CIs) are messages that a speaker wishes to convey. For example, a message may be used to comment, request, greet, protest, or direct the behavior of others. Furthermore these messages may be expressed in a number of different forms, including physical body language, gesture or formal sign, vocalization, verbalization, or some combination of the available forms. Thus, communicative intention may be seen as a more encompassing term than that of "speech act", as specified by Searle (1965), which usually refers to a verbally encoded message. Generally the term communicative intention(s) will be abbreviated CI or CIs.

Presupposition encompasses a speaker's message in relation to the specific information needs of a listener. Thus, presupposition involves the process of assuming which information a listener possesses or may need, and showing consideration to contextual variables of communication partner and the social context.

Social Organization of Discourse involves the skills of initiating and maintaining a dialogue between and among communicative partners over several conversational turns. Thus, social organization of discourse involves the rules or skills of being "social", taking turn, using the conversational skills of initiation, maintenance, shift, and termination, and managing conversational breakdowns.

Context involves the situation in which an interaction occurs. For the purposes of this study the data collected on the children's pragmatic language competencies has been limited to two common educational "contexts". The "Language Lesson" context, which will be referred to as the "Lesson" context was taken to represent a more formal instructional situation, and the "Snack Time" context, or "Snack", was taken to represent a more informal educational situation.

II. REVIEW OF THE LITERATURE

A. Introduction

Although the amount of literature focussing on the language competencies of hearing impaired children is voluminous, the research which has considered the pragmatic language competencies of preschool-aged hearing impaired children is relatively small. The limited amount of literature likely reflects several facts: (a) the basic ground work is as recent as case studies from the mid 1970's; (b) a theoretical framework upon which research could be based was absent until recently; and (c) the methods of investigating pragmatic skills have, and continue to be, labor and time intensive. Nevertheless, it is widely believed that research in this area will make a significant contribution to the well being of hearing impaired children.

The first part of this review will outline the organizational framework of Spekman and Roth (1982), which reflects an extensive review of early research. The second part will present those studies which have investigated the pragmatic language skills of hearing impaired children. The final part of this review will (a) discuss how the pertinent studies may be conceptually organized, according to Marx (1963), from a perspective of theory construction and basis of knowing, (b) identify recommendations from previous researchers, and (c) outline the research questions which stem from this review of the literature.

B. Perspective of the Organizational Framework

Roth and Spekman (1984a/b) have suggested that the development of formalized pragmatic assessment instruments must await a clearer delineation of a normal developmental sequence. However, it is possible to draw on empirical and theoretical literature to construct an organizational framework for analyzing performance in this area. This framework would aid in fulfilling the two main objectives of an assessment (a) to determine the effectiveness of a child as a communicator, and (b) to provide recommendations regarding appropriate intervention strategies.

The Spekman and Roth (1982) framework consists of "context" and three main components (a) communicative intentions, (b) presupposition, and (c) the social organization of discourse. These components will be elaborated upon in the text following the illustration of the framework in Figure 1.

(This Figure has been deleted because of the unavailability of copyright permission.)

Figure 1. Organizational framework for assessing pragmatic abilities (Spekman & Roth, 1982).

Communicative Intentions

This component of pragmatics involve the information which a speaker wishes to convey and may be described in two ways. The "range" of the message may include comments, requests, greetings, protests, or attempts to direct the behavior of others. Each of these informational packages may be transmitted to the communicative partner in a variety of "forms" including informal gestures, formal signs, vocalization, verbalization, or some combination. Thus, at the level of the CI or individual speech act, the focus is on the speaker and the single message, which is encoded in some form by the speaker, and eventually interpreted by the listener.

Range of Communicative Intentions

The different ranges of CIs or speech acts have been identified for normal children at different developmental levels. Dore (1974), Bates et al. (1975), and Halliday (1975) identified seven intentions which preverbal children express through gestures and early vocalizations: Attention seeking, Requesting, Greeting, Transferring, Informing, Protesting/Rejecting, and Responding/Acknowledging. While at the single word level Dore (1974, 1975), Halliday (1975), and Dale (1980) identified nine intentions in the communicative efforts of young children: Naming, Commenting, Requesting (object, action, information), Responding, Protesting/Rejecting, Attention seeking, and Greeting. Finally, at the multi-word level the work of Dore (1978a/b) and Halliday identified six categories of CIs: Requesting (Information/Action), Responding to requests, Stating/Commenting, Regulating conversational behavior, and other Performatives.

Table 1 outlines Day's (1986) CIs. This system includes the six categories of speech acts Dore (1978a/b) found in the utterances of three-year-old hearing children, as well as those intentions which Skarakis and Prutting (1977), Curtiss et al. (1979), and Day have been found in the communication of hearing impaired children.

Table 1

Communicative Intentions (CIs) as Described by Day (1986)

Intention	Description
CONVERSATIONAL DEVICE	CI INITIATE OR CONTINUE SOCIAL CONTACT.
1. Check	- action to see if partner's attention is still directed to self.
2. Comment	- expression without specific information... "There!"
3. Direct Attn (object)	- directs partner's attention to object.
4. Direct Attn (self)	- device used in an attempt to get partner's attention.
5. Imitate	- imitates partner for practice or to fulfil turn.
6. Offer	- gives indication of willingness to share or give.
7. Polite	- uses politeness markers... "sorry, please, thank you..."
DESCRIPTION	CI FUNCTION ESSENTIALLY AS LABEL.
8. Event	- describes an event, activity, or behavior.
9. Identity	- labels a person or object.
10. Location	- indicates objects or persons not present.
11. Possession	- indicates the owner of a particular object.
12. Property	- refers to a property of an object..."hot, cold, empty..."
REQUEST	CI HAS A GOAL OF OBTAINING A RESPONSE FROM PARTNER.
13. Action	- expression's goal is action on the part of the partner.
14. Object	- expression's goal is obtaining an object or substance.
15. Wh	- inquires about what, where, when, why.
16. Yes/no	- requests to be allowed to do something.
PERFORMATIVE	CI PERFORMS FUNCTION OF THE INTENTION.
17. Claim	- establishes right to have control of an object or activity.
18. Game	- behaviors in a sequence of amusing behaviors.
19. Greet	- acknowledges arrival of a person.
20. Joke	- initiates humorous sequence and shares with others.
21. Pattern	- rote counts or signs a sequence.
22. Protest	- indicates displeasure over person, event, or situation.
23. Role play	- establishes an imaginary role or identity.
24. Scold	- reprimands another for an action or event.
25. Warn	- alerts or reminds partner of possible harm.
RESPONSE	EXPRESSION CONTINGENT ON EARLIER EXPRESSION OR ACTION
26. Agree/Disagree	- notes agreement/disagreement with preceding message.
27. Attend	- looks/listens to partner with no other response.
28. Attribute	- attributes feeling/affective state to other person/object.
29. Clarify	- repeats or modifies misunderstood statement.
30. Explain	- knowledges relationship (object, action, & event).
31. Express/Evaluate	- expresses feelings about an occurrence or situation.
32. Statement	- expressions code information or feelings.
33. Wh	- responds to a Wh question from partner.
34. Yes/no	- responds to a yes/no question from partner.
UNINTERPRETABLE	EXPRESSION NOT FITTING OTHER DESCRIPTIONS.
35. Unknown	- as above...

Form of Communicative Intentions

The form of CIs involves the way communicative intentions or speech acts are conveyed. At the simplest level the CI is expressed through motor activity encompassing a large variety of body movements. More sophisticated levels of form would involve facial expressions, formal gestures, signing, voicing, and/or paralinguistic changes in stress patterns, duration, intonation, pitch, and intensity levels. Eventually the intentions can be expressed linguistically through words, phrases, and sentences, or the equivalent in sign language. For the more syntactically advanced child, the messages can be coded by sentence types (e.g., declarative, negative, passive, imperative, conjoined, interrogative, & embedded).

Presupposition

Presupposition involves, informativeness, the understanding that information is not necessarily explicit in a stated message, but must be shared if the message is to be understood by the communicative partners in a given social context. Thus, presupposition encompasses a speaker's message in relation to the specific information needs of a listener and the situation.

In order to demonstrate competencies in this area individuals must have the ability to take the perspective of their communicative partner and participate in role-taking. The speaker must be able to share information about the partner and the context in order to determine the content and form of the message. Thus the notion of presupposition includes the ability to make appropriate inferences regarding shared knowledge and the partner's needs.

A competent language user realizes that certain information becomes redundant in a conversation and may be omitted as the conversational exchange continues because it is possible to presuppose that the listener shares this information with the speaker. Furthermore, individuals must be aware that if a conversation is to emerge one partner must assume the speaker's role and the other, the listener's role and the potential for role reversal must exist.

The listener must also infer a speaker's intent rather than relying exclusively on a literal interpretation of the message. This shared information can be established between communication partners by: (a) mutually monitoring some shared aspect of the physical setting; (b) sharing some general knowledge of the speech situation itself, or of one's communicative partner (e.g., age, status, cognitive level, past experiences); and (c) mutually monitoring the preceding discourse.

Informativeness

Informativeness is the first aspect of presupposition to be considered and involves having a general knowledge of the speech situation and preceding discourse. It also involves understanding that new information once articulated becomes old information, which can be used to generate additional new information.

At the "message information level" the individual must be able to make explicit and implicit semantic connections in both the speaker and listener roles. At the "linguistic information level" the individual must understand the syntactic principles which are used to encode old and new aspects of knowledge for the listener.

In the area of informativeness, the linguistic components of deictics, articles, and cohesive devices are considered. With deictics, the communicative partners must realize that personal and demonstrative pronouns, adverbs of time and location, and a large number of verbs all have a shifting reference feature relating to the "speaker principle". Thus, to correctly use and understand personal pronouns, the conversational participants must realize that "I" and "you" change reference with each change in speaker. In the case of articles, the speaker and listener must both recognize that in order to be maximinally informative the articles "a" or "an" are used to initially designate an item, but in subsequent references to that item the article "the" can be used. And finally, with cohesive devices, the listeners must realize that redundant information from questions and statements need not be repeated from the point of linguistic economy when it is the listener's turn to speak. For example, if the speaker asks how his listener is feeling, the normal response would be "fine" or "ok". Thus the new speaker does not need to repeat information of the old speaker by saying "I am feeling fine" or "I am feeling ok".

Communicative Partner

This second major area of presupposition involves having the skills to formulate messages which consider the characteristics of the listener: age, status, level of familiarity, cognitive level, linguistic level, and shared past experiences. For example, the classroom teacher might assume that a hearing impaired student shares very little of the other students' background knowledge; thus, the teacher makes modifications to the language patterns such as lengthy explanations in order to compensate for this lack of shared information. In contrast hearing impaired classmates in a familiar situation may say very little because much information is common knowledge. Conversely, the listener must attempt to keep the speaker informed of the status of the communication. If the listener doesn't understand or is confused, a quizzical expression or a verbal "Huh?" may be given as feedback.

Social Context

With the social context area of presupposition, message modifications indicate that the speaker has the ability to monitor the shared aspect of the physical setting. The speaker must know how to compensate the listener for a reduction in the communicative channels by making the message as clear and explicit as possible.

Social Organization of Discourse

This component of pragmatics relates to initiating and maintaining a dialogue between and among partners over several conversational turns. Roth and Spekman (1984a/b) identify (a) turntaking, (b) topic initiation, maintenance, shift, and termination, and (c) breakdown/repair, as subareas for consideration.

Turntaking

Turntaking is one of the most important features of this component. By necessity each individual must be able to function, and assume the responsibilities, in both the speaker and listener role. Bruner (1975) and others have demonstrated that this activity occurs very early in mother-infant interactions.

Topic Initiation, Maintenance, Shift, and Termination

Initiation, Maintenance, Shift, and Termination are skills that a competent communicator must be able to perform. Specifically, individuals must know how to:

(a) address one another; (b) agree upon a topic; (c) take turns developing a topic; (d) make their contributions intelligible, relevant, truthful, unambiguous, and appropriate to the situation and partner; (e) make shifts to new topics if and when necessary; and (f) end a conversation appropriately.

Breakdown and Repair

Breakdown and repair is the final skill that a competent communicator must know about the social organization of discourse. The communicative partners must be able to (a) recognize when communication is breaking down, (b) inform the speaker of the problem, and (c) know what strategies can be used to save the interaction from total collapse.

Context

The final element of the framework is context. The context in which an interaction occurs, must be considered in conjunction with all other components. This is a critical variable because it affects the type and form of the CIs conveyed, the information that must be presupposed, and the manner in which the conversation is organized.

C. Research with Hearing Impaired Children

In reference to the framework of Spekman and Roth (1984a/b) the studies of the pragmatic language competencies of young hearing impaired children has focused primarily on CIs. Five studies have addressed this area (Skarakis & Prutting, 1977; Curtiss et al., 1979; Schirmer, 1985; Day, 1986; and Verlaeten, 1985). At this time the pragmatic abilities of presupposition and organization of discourse with preschool hearing impaired children has received limited attention. However, a study by MacKay-Soroka, Trehub, and Thorpe (1987) with hearing impaired school aged children has been included in this review, since the investigation considered certain features of presupposition and social organization of discourse using referential meaning tasks.

Studies of Communicative Intentions

Skarakis and Prutting (1977), Curtiss et al. (1979), Schirmer (1985), Day (1986), and Verlaeten (1985) all conducted studies on the CIs that hearing impaired preschool children use when communicating with other people. Each study differed on a number of aspects. In some cases the age of the children varied and in others the linguistic environment of either the home or educational institution differed. In all five studies the systems used to categorize the CIs was subject to variability. However, even with these differences an important corpus of information about the language competencies of hearing impaired preschool children has been garnered. Table 2 summarizes the information of the five studies under the headings of purpose, subject characteristics, linguistic environment of home/school, data collection, recording/data analysis, reliability, and results. The work of Skarakis and Prutting, Curtiss et al., Schirmer, and Day have been grouped together in the table since these studies focused on the range of CIs. The study of Verlaeten has been separated since the study only considered the form of CIs.

Table 2.
Summary of Studies Investigating CIs in Hearing Impaired Children

Reference	Purpose	Subject Characteristics	Linguistic Environment	Data Collection
Skarakis & Prutting (1977)	To study spontaneous CIs in HI preschool children learning oral English as first language.	4 severe/profound HI, age 25 to 50 months, normal IQ, no additional handicaps.	Hearing parents, attended an oral preschool program, no sign language instruction.	Children taped for 1 hour in Snack Time, Group Lesson, Individual Lesson, Free Play.
Curtiss et al. (1979)	To characterize pragmatic communicative development of HI preschool children learning oral English as first language.	12 severe/profound HI children, age 22 to 60 months, no additional handicaps, normal IQ.	Spoken English--first language, attended an oral preschool program.	Children videotaped ≈ 15 minutes in four different settings--Group Lesson, Snack Time, Free Play & Outside.
Schirmer (1985)	To describe/compare HI preschool children's acquisition of pragmatics from manual & oral environments.	20 severe/profound HI children, age 36 to 60 months, no additional handicaps.	10 children used aural/oral communication &10 used Signed English.	Children taped for 1 hour interacting with the researcher & a set of materials.
Day (1986)	To study expression of CIs by 3 year old HI children learning a system of manually coded English.	5 profound/prelingual HI children, 35 to 42 months of age.	Hearing parents, learning Manually Coded English (MCE), children attended an early intervention program using (MCE).	Children videotaped for 3 hours at home while interacting with mother & a set of toys.
Verlaeten (1985)	To investigate interactive CIs of H & HI preschool children.	15 HI & 15 H children, 24 to 60 months of age.	15 HI children used French Sign Language/Cued Speech.	Children's communication observed/coded in classroom

CI(s) = Communicative Intention(s), HI = Hearing Impaired, H = Hearing.

Table 2.
Summary of Studies Investigating CIs in Hearing Impaired Children

Reference	Purpose	Subject Characteristics	Linguistic Environment	Data Collection
Skarakis & Prutting (1977)	To study spontaneous CIs in HI preschool children learning oral English as first language.	4 severe/profound HI, age 25 to 50 months, normal IQ, no additional handicaps.	Hearing parents, attended an oral preschool program, no sign language instruction.	Children taped for 1 hour in Snack Time, Group Lesson, Individual Lesson, Free Play.
Curtiss et al. (1979)	To characterize pragmatic communicative development of HI preschool children learning oral English as first language.	12 severe/profound HI children, age 22 to 60 months, no additional handicaps, normal IQ.	Spoken English--first language, attended an oral preschool program.	Children videotaped ~ 15 minutes in four different settings--Group Lesson, Snack Time, Free Play & Outside.
Schirmer (1985)	To describe/compare HI preschool children's acquisition of pragmatics from manual & oral environments.	20 severe/profound HI children, age 36 to 60 months, no additional handicaps.	10 children used aural/oral communication &10 used Signed English.	Children taped for 1 hour interacting with the researcher & a set of materials.
Day (1986)	To study expression of CIs by 3 year old HI children learning a system of manually coded English.	5 profound/prelingual HI children, 35 to 42 months of age.	Hearing parents, learning Manually Coded English (MCE), children attended an early intervention program using (MCE).	Children videotaped for 3 hours at home while interacting with mother & a set of toys.
Verlaeten (1985)	To investigate interactive CIs of H & HI preschool children.	15 HI & 15 H children, 24 to 60 months of age.	15 HI children used French Sign Language/Cued Speech.	Children's communication observed/coded in classroom

CI(s) = Communicative Intention(s), HI = Hearing Impaired, H = Hearing.

In considering the purpose for conducting these investigations, it is possible to see that the researchers had different motivations and interests. Skarakis and Prutting (1977), Curtiss et al. (1979), and Day (1986) were primarily interested in identifying the range of CIs that hearing impaired children use, with a secondary interest of determining whether these intentions differed from hearing children. On the other hand, Schirmer (1985) was interested in the acquisition of CIs in two different groups of hearing impaired children. And finally, Verlaeten (1985) was not directly studying CIs but was interested in using statistical tools to illustrate that the hearing impaired and hearing used different forms to express their intentions, which has implications for integrating hearing impaired students into hearing schools.

On the criteria of subject characteristics, the children in all five studies appear to have some homogeneity for the degree of hearing loss, absence of additional handicaps, and normal intelligence. However, even though the majority of the children were in the preschool age group of three to six years, the variability of competencies within this span of three years may reduce the usefulness of using "preschool" as a descriptor of a group of hearing impaired children.

On the level of linguistic environment there was considerable diversity in the various studies. The subjects of Skarakis & Prutting (1977), Curtiss et al. (1979) and the oral hearing impaired subjects of Schirmer (1985) all had similar "oral" environments. Similarly, Schirmer's group using Signed English, and Day's (1986) subjects who were using a Manually Coded English (MCE) system, are relatively homogeneous since both groups were using a Sign Language system with English word order. On this factor Verlaeten's (1985) subjects would have to be considered unique since they appear to be using an unusual combination of French Sign Language (FSL), which is a manual communication system with its own syntax, and Cued Speech (Cornett, 1967) an oral method designed to aid the comprehension of a spoken language. In view of these differences, generalizing the results to other preschool subjects may be a problem.

With respect to data collection, the observational procedures of the Verlaeten (1985) study remain a major weakness. Roth and Spekman (1984a/b) have suggested that in order to perform multiple levels of analysis on the same corpus of behaviors, a permanent auditory and visual record is necessary. And although the other studies employed videotaping, the research designs differed considerably in the choice of the site for filming. Schirmer (1985) used a clinic setting with a speech clinician, and Day (1986) filmed the children at home with their mothers. Only the studies of Skarakis and Prutting (1977) and Curtiss et al. (1979) could be considered comparable where a classroom context with teachers was used.

Even at the basic level of categorizing the different kinds or range of CIs, each study has used different data analysis procedures. The studies by Skarakis and Prutting (1977), Curtiss et al. (1979), and Day (1986) all used modified versions of the systems developed by [illegible]e (1974,1978a/b). However, comparing the results of even these studies is difficult for two main reasons. First, Dore's systems, consisting of six to nine main categories of CIs, were not based on the productions of hearing impaired children, rather the categories developed out of case studies of hearing children from infancy through three years of age. Thus, the early researchers were required to modify the Dore system to accommodate the competencies of the hearing impaired. Secondly, the earliest studies applied Dore's system in its simplest form and it wasn't until the preliminary results were available that researchers recognized the need for the more sophisticated categorization systems. The results indicated that the more complex systems were necessary because the hearing impaired children were using the same CIs as hearing children--differing only in form and possibly frequency of application. The Schrimer (1985) study using Halliday's system also suffers from a lack of sophistication at least with the older children in the study, and it was also unfortunate that the author did not elaborate how Halliday's categories were adapted for the hearing impaired subjects.

When considering the form of the CIs, the three studies which considered this feature, Skarakis and Prutting (1977), Curtiss et al. (1979) and Verlaeten (1985) all differed in their categorization criteria. Skarakis and Prutting, and Curtiss et al. defined their categories, but the classification criteria of the Verlaeten study were not described in detail.

In the very important area of reliability, only three of the studies reported their procedures and findings. Of the three, Day (1986) and Skarakis and Putting (1977) considered, respectively, only 3 and 4 percent of the total number of speech acts in their study of reliability. This can be seen as an important weakness given the difficulties of classification and the uniqueness of the research. On the other hand, the rigorous procedures of Curtiss et al. (1979) illustrate that identification, classification, and designation of range and form can be accomplished in an effective and accurate manner. The failure to report reliability procedures in the studies of Schirmer (1985) and Verlaeten (1985) poses a serious threat to both internal and external validity since the accuracy of their findings is unknown.

With regard to the results there was a general agreement in the findings of Skarakis and Prutting (1977), Curtiss et al. (1979), Schirmer (1985), and

Day (1986). In each study the hearing impaired children were found to exhibit the full range of CIs which were included in the investigation, and with the exception of a delay in using the intentions, the development appears to parallel that of normal children.

The results of the studies of form also presented a fairly unified position that hearing impaired children are able to code their CIs effectively in means other than in verbal form, if they lack the necessary syntactic, morphologic, and phonemic structures of the spoken language. It would appear that the hearing impaired child use prelinguistic gestures and other paralinguistic structures to a greater degree than do hearing children, regardless of their formal knowledge of sign language systems. Thus these complimentary strategies are likely responsible for the children's effective coding of their CI transmissions.

Studies of Presuppositional Skills

As mentioned earlier, no published studies involving preschool hearing impaired children have addressed the Presuppositional areas of pragmatic language abilities. However, the study by MacKay-Soroka et al. (1987) with school aged hearing impaired children likely has important tenets for the competencies that hearing impaired preschool children may exhibit.

The purpose of this study was to provide a preliminary description of referential communication skills and strategies deaf children use to interact with their mothers. In this case the referential message involved the children accurately describing an illustration so that their mothers, the listeners, would be able to correctly select one item from a four set array. The specific objectives were to examine the nature and quality of deaf children's referential messages to their mothers along with the outcomes of these messages. The study involved two groups of 15 hearing impaired children who ranged in age from 6 to 10 years. Subjects from one group were in oral environments and the other group attended schools where a bimodal method of communication was used. The data were collected using 8-four choice referential communication tasks.

The adequacy of the child's message was assesed by a rating system. A message was given a score of "1" if it described the target referent uniquely. A score of "2" was assigned if the message was ambiguous between the target referent and one nonreferent. A score of "3" or "4" was assigned if the message could refer equally to three, or all four pictures. The total adequacy score was then subtracted from 32 to arrive at an adequacy measure. Independent ratings on all trials were made by an observer who was not present during the test session, and the interobserver reliability (number of agreements divided by number of ratings) was .89 for both the bimodal and oral groups.

In this study bimodal children were found to have provided more differentiated messages, which allowed the mother to more accurately select the described picture, than did orally educated deaf children, a finding that remained when age was covaried.

Studies of Social Organization of Discourse Skills

Again no published studies were found which directly addressed this area of pragmatic language competencies in preschool aged hearing impaired children. However, the previously discussed study of MacKay-Soroka et al. (1987) did consider the ability of the school-aged hearing impaired child to repair a message, one of the skills involved with Social Organization of Discourse as outlined by Roth and Spekman (1984a/b).

The study of the children's ability to repair "failed" messages involved an examination of the nature and quality of the reformulations in comparison to their original messages. When the mother was unable to choose the correct picture the child was asked to provide another description of the target referent. The child's reformulations were then rated using the same "1" to "4" point scale described earlier, and a mean reformulation adequacy score was calculated for each child by averaging the ratings across his or her reformulations. A separate interobserver reliability was not carried out on this part as it was included in the overall rating, but interobserver reliability on the categorization of whether the reformulations were (a) task-relevant (i.e., adding differentiating information) or (b) task-irrelevant (i.e., adding non-differentiating information or repeating all or part of the initially inadequate message) was found to be .92 and .89 for bimodal and oral children respectively. A Mann-Whitney U test indicated that the mean reformulation adequacy score of the bimodal group was significantly lower than for the oral group. Thus, the bimodal group were found to have provided more differentiated reformulations.

MacKay-Soroka et al. (1987) also found that the hearing impaired children frequently responded to mother's requests for additional information by repeating their initially inadequate message (37% of all reformulations). More specifically, simple repetition was the major reformulation strategy of 27% of the bimodal children and 46% of the oral children.

An unpublished study of 4 orally educated hearing impaired children between 5.6 and 6.6 years of age, also found the use of repetition in 37% of all reformulations (Beattie, 1987). However, the results of MacKay-Soroka et al. (1987) may be somewhat misleading about the reformulation ability of orally educated hearing impaired children because their criteria for evaluating reformulations were not sufficiently discriminating. Beattie's results suggested that oral children may indeed repeat the same linguistic structures, but extralinguistic features such as pitch, volume change, or stress, may be added for clarification.

Conclusions from the Review

To summarize the results of this literature review on the pragmatic language competencies of hearing impaired preschool children using the Roth and Spekman (1984a/b) organizational framework. The following conclusions can be drawn:

Communicative Intentions

1. A hearing impairment by itself does not limit the possibility for the hearing impaired child to develop a full range of CIs.
2. The hearing impaired child acquires and uses the same range of intentions that have been found in hearing children and these intentions can be identified by the communicating partner.
3. Insofar as it is possible, the hearing impaired child's expression of CIs is best described as delayed in comparison to hearing children.
4. There is evidence to support the view that the amount of communication is suppressed in the hearing impaired child, as compared to the hearing

child, but this amount of communication varies considerably with context and discourse partner.

5. There is tentative evidence supporting the position that hearing impaired children use some CIs to a greater or lesser degree than a hearing child.
6. Regarding form, the hearing impaired child uses prelinguistic gestures and paralinguistic structures to a greater degree than do hearing children.

Presupposition

1. There is limited information on the preschool hearing impaired child's abilities in the area of presupposition.
2. Differences in presupposition likely vary with educational modality.
3. There is tentative evidence to suggest that bimodally educated hearing impaired children may be more effective at communicating their intentions and taking into account the needs of the listener than orally educated hearing impaired children.

Social Organization of Discourse

1. There is limited information on the preschool hearing impaired child's abilities in the area of social organization of discourse.
2. Differences in social organization of discourse skills likely vary as a function of modality of education.
3. There is some evidence to suggest that bimodally educated hearing impaired children may be better at reformulating or repairing failed messages than orally educated hearing impaired children.

D. Summary

This summary will (a) outline how the present research has contributed to the body of knowledge by considering the formal modes of theory construction by Marx (1963), (b) discuss implications for research as identified in the literature, (c) present the recommendations of previous researchers, and (d) identify questions pertinent to future research and the present study.

Theoretical Basis

When the studies of pragmatic language competencies are considered with reference to the modes of theory construction by Marx (1963), the four primary studies of CIs, Skarakis and Prutting (1977), Curtiss et al. (1979), Schrimer (1985), and Day (1986) were using as a "basis for knowing" a "level 1" analysis based on observation. In each study the researchers were counting the number and kind of intentions and/or the form that the children were using. With regards to the "mode of theory construction", the research on pragmatic language competencies has taken a "functional approach" in Marx's classification. Each study has built on the next, and the position or theory that hearing impaired preschool children can have normal CIs has emerged from the studies. In addition, the functional building approach can be clearly seen in the use of increasingly more complex systems to categorize the CIs once it was evident that simple organization systems were inadequate tools to fully explore the hearing impaired child's range of intentions.

When the MacKay-Soroka et al. (1987) study is considered on the Marx (1963) criteria, it is possible that even though the researchers are taking a functional approach to theory construction, the "basis of knowing" involves a "level 2" analysis where the researchers speculate that the difference in pragmatic language skills may be related to the communication modality.

In light of these considerations, the present study has been designed to continue the building of the functional theory concerning the pragmatic language competencies of young hearing impaired children. Furthermore, these contributions to the theory will extend beyond the range and form of the CIs and include observational or "level 1" analysis of the skills these children demonstrate in the areas of presupposition and social organization of discourse.

Implications Identified in the Literature

This review of the literature on pragmatic language competencies of hearing impaired preschool children has raised important implications and/or recommendations. In most cases the implications have focused on how present knowledge can be used in assessment and remediation, but several potential areas for research have also been outlined.

Skarakis and Prutting (1977) suggested that the analysis procedure they developed to investigate CIs could be used as an assessment tool to describe the hearing impaired child's early communication. Furthermore, they suggested that the finding of parallel development of communicative intentions in hearing impaired and hearing children could suggest guidelines for the content and sequencing of language remediation programs. Schirmer (1985) who concurred with Skarakis and Prutting (1977) on the delayed language findings, suggested that these findings have three important implications for language curricula: (1) Hearing impaired curricula should incorporate all components of language. (2) Hearing impaired children should be immersed in a language-rich environment. (3) Young hearing impaired children should be given the freedom to use non-adult forms of the language.

Recommendations of Researchers

Curtiss et al. (1979) indicated that even though their subjects were able to code pragmatic and semantic behaviors using primarily a non-verbal modality, the amount of communication was suppressed in comparison to normal hearing children. The reasons why these children are communicatively suppressed is open to question. Curtiss et al. recommended that comparative, in depth, linguistic studies be conducted to investigate deaf children learning sign as a first language with deaf children learning spoken English as a first language to differentiate the effects of auditory deprivation from specific educational remedial procedures employed. The researchers suggested that it is essential to move research in this direction to meet the educational-psycho-social needs of the hearing impaired.

Schirmer (1985) recommended that the investigation of hearing impaired children's language be comprehensive with regard to syntax, semantics, and pragmatics. However, Schirmer suggested that further research is needed to develop thorough and efficient methods of analysis, for evaluating all three components.

Day (1986) recommended that it is important to follow the development of groups of hearing impaired children to determine whether early differences in patterns of language use are predictive of differences in later language and academic functioning. Furthermore, if pattern differences are predictive of later problems, then early interventions should be designed to provide young hearing impaired children with models of language that afford the best opportunity for the development of well-integrated language systems, thus improving their chances for developing to their maximum potential.

MacKay-Soroka et al. (1987) also made a suggestion for further research after they found that there were differences in deaf children's message-sending skills as a function of modality of education. They suggested that is it important to ascertain the extent to which hearing status, educational placement, or communication modality contribute to children's ignorance of effective communication strategies and their deficiencies in language or speech.

Research Questions Stemming from Review

1. Are there differences in the teacher/subject communication within different classroom environments which may account for variation in pragmatic language competencies in the hearing impaired preschool subjects?
2. Are there comprehensive or pattern differences in the pragmatic language competencies of hearing impaired preschool children with regard to age, methods of communication, and educational environments?
3. Do hearing impaired preschool children of different ages, methods of communication, and educational environments exhibit the same range of CIs in the sophisticated categorization system used by Day (1986)?
4. Do hearing impaired preschool children of different ages, methods of communication, and educational environments show different developmental sequences or patterns regarding CI Range and Form characteristics?

5. Do hearing impaired preschool children of different ages, methods of communication, and educational environments show different pragmatic language competencies in the area of presupposition?
6. Do hearing impaired preschool children of different ages, methods of communication, and educational environments show different pragmatic language competencies in the area of social organization of discourse?

III. METHODOLOGY

A. Introduction

This chapter will present information pertaining to the (a) research design, (b) subjects, (c) collection of language samples, (d) instruments and data analysis, (e) observer training and reliability, (f) internal and external validity, and (g) limitations.

B. Research Design

The research study could be considered to be a particular type of descriptive study; a pre-experimental case study repeated over multiple subjects (G. M. Kysela, personal communication, April 6, 1987). The study has the characteristics of case studies since it is based on extensive observations and descriptions of the subjects. As well, the study carries the pre-experimental label since extraneous factors were not entirely ruled out. The research design was chosen so that specific research questions might be developed for future investigations involving true experiments. Thus, the aim in this study is hypothesis development--not hypothesis testing.

The range of control in case studies may vary greatly depending upon the type of data and method of data collection. Anecdotal information from subjects or significant others and objective measurement of overt behaviors represent the extremes of the data spectrum in case study research. While there was an attempt in this study to establish a significant level of control through (a) selecting educational contexts which have a degree of commonality across settings, (b) videotaping the language samples to improve reliability, and (c) structuring the assessment instruments to make the study of the pragmatic language components as discrete as possible, factors such as individual therapy, unscheduled visits, childhood illnesses, and the weather made the conditions somewhat variable.

C. Subjects

Fourteen hearing impaired preschool children between 3 years 3 months and 5 years 10 months of age were considered as possible subjects. The children were attending an early intervention/preschool program at a rehabilitation hospital in a large urban area. Initially the study intended to investigate the competencies of two equal groups of hearing impaired preschool children--one group participating in an Oral educational program and the other participating in a combined Oral/Sign Assist program. This plan was modified because of subject characteristics and availability. The sections discussing "permission to participate" and "characteristics of subjects" will clarify issues which led to the design modification.

Locating Subjects

The study was initially proposed to a classroom teacher and speech therapist who worked in the preschool program. Subsequently, a formal research request was made to the Research Committee of the hospital. The preschool program was chosen as the research site for several reasons:

1. There was a reasonable number of appropriately aged children participating in programs using the different methods of communication.
2. There was a recognized consistency of programs between the classrooms and teachers.

3. Interest in the research topic and the information which might be collected from this study was expressed by members of the teaching staff.
4. The communication system of the Sign Assist program--Manually Coded English (MCE)by Bornstein, Hamilton, Saulnier, and Roy (1975) would be less problematic for transcription, coding, and analysis by the researcher.
5. The facilities at the hospital included observation rooms which would allow minimal disturbance of normal classroom activities while collecting the language samples.

Permission to Participate

Permission for the potential subjects to participate was solicited from the parents or guardians by a letter which explained the nature, purpose, and implications of the study. Specifically, the letter discussed (a) the aspects of language that would be studied, (b) the videotape data collection procedure, (c) how the information from this study could have important implications for developing evaluative tools and teaching techniques for hearing impaired children, and (d) assurance of confidentiality and the right to withdraw at any time. Written permission was secured for 13 of the 14 children initially considered as potential subjects. A copy of the explanatory letter/consent form may be found in Appendix A.

Characteristics of Subjects

Permission to participate was secured for 13 children. Ten subjects were enrolled in the Oral program and eight had had no formal sign language instruction.

The remaining three subjects were in the Sign Assist program, but came from a hearing home environment. The initial subject parameters for participation in the study were, normal intelligence, a prelingual hearing loss in the severe or profound range, and no additional handicaps which could complicate the acquisition and use of language and communication. In this study a prelingual hearing loss was defined as a hearing loss which occured before the onset of speech at approximately eighteen months (Moores, 1978).

Four of the subjects were excluded because of hearing acuity better than the severe category and a fifth child was not included because of physiological problems which may be complicating the acquisition of language skills. In the attempt to select subjects with as many similar characteristics as possible the initial proposed design of two equal groups was not possible. However the eight children, selected to serve as subjects, serendipitously provided an interesting research design which has been illustrated in Figure 2. In addition to the subjects, the class arrangements included two additional children, for a total of four, in the three Oral environments and three additional children, for a total of five in the Sign Assist setting.

	Number of Subjects per Linguistic Environment		
Age (years)	Oral	Sign Assist	
< 3.5	2	- -	
≈ 4.5	2	2	
> 5.5	2	- -	

Figure 2. Research design: Subject arrangement.

The eight children selected as subjects, five female and three male, were all healthy Caucasians from middle to low income families. The subjects lived in the urban area and were unknown to the researcher. The subjects lived with either one or both natural parents. The parents of all the subjects in both programs were hearing. The sign skills of the parents whose children were using the manually coded English Sign system varied considerably. Table 3 summarizes the subjects' characteristics.

Table 3

Subject Characteristics

Subject	Sex	Age	BEA*	AA@	Hearing Status	Linguistic Enviornment Home/School	Active Program	Day Care/ Kinder-garten
1	F	3-3	107	67	Profound Prelingual	English Oral	Long Term	Yes/No
2	F	3-5	112	63	Profound Prelingual	English Oral	Long Term	Yes/No
3	M	4-5	105	40	Profound Prelingual	English Oral	Long Term	Yes/No
4	F	4-6	87	38	Severe Prelingual	English Oral	Short Term	Yes/No
5	F	5-7	98	32	Profound Prelingual	English Oral	Long Term	Yes/Yes
6	M	5-10	108	43	Profound Prelingual	English Oral	Long Term	Yes/Yes
7	M	4-8	127	65	Profound Prelingual	English Sign	Long Term	Yes/Yes
8	F	4-9	113	75	Profound Prelingual	English Sign	Long Term	Yes/Yes

* BEA = Better Ear Average--average hearing threshold for 500, 1000, and 2000 Hz. Collection of audiological information involved co-operative play audiometry and standard pure tone audiometric procedures.

@ Estimated Aided Audiogram--average hearing thresholds for 500, 1000, and 2000 Hz.

D. Collection of Language Samples

The decision to record the language samples on videotape was made (a) to assist the transcribing of the complex linguistic interactions, (b) to allow a multi-level analysis on the same corpus of behaviors, and (c) to allow the findings to be verified by independent raters. This decision was reinforced by Cole and St. Clair-Stokes (1984a/b) who suggested that repeated examination may be necessary in order to discern meaning based on a composite of social, physical, and linguistic contexts.

Schedule of Recording Sessions

The subjects' language samples were recorded over a five week period from January 23, 1989 to February 22, 1989. The recordings were collected in a three week period, but the time span was interrupted by inclement weather and schedule conflicts. A schedule indicating the dates on which the subjects' language samples were recorded may be found in Appendix B.

There was an attempt to collect the subjects' language samples on two different days so that the sample would not be unduly influenced by a particular event or transient emotional/physical states. However, for four subjects the samples, for both contexts, were collected on one day due to scheduling difficulties. In these four cases the language samples did not appear to be affected by either outside influences or emotional/physical irregularities.

In general, it was harder to achieve a consistent arrangement for the Lesson context because of individual therapy sessions with other rehabilitation professionals, but the consistency of the Snack context allowed for the simultaneous collection of samples on two subjects at a time, in each of the four age/environment settings.

This collection procedure not only resulted in a saving of time in the collection process, but also afforded a considerable saving of time in the editing and transcription stages.

Recording Session Parameters

In order to achieve a degree of equality in the language samples several factors were considered: (a) situation, (b) setting, (c) timing, (d) permanency, and (e) consistency. The Lesson and Snack contexts were chosen as acceptable "situations" since they are generally components of preschool programs for hearing impaired children. Furthermore, it was felt that these contexts account for some of the variation in the educational communicative environment of a hearing impaired child in a preschool program. The Lesson context was taken to represent a more formal instructional situation where both teacher and cohort interaction were possible, and the Snack context allowed for the same interaction, but in a more informal manner. The regular classroom, where group activities and formal instruction were conducted, was chosen as the setting to facilitate the collection of natural teacher/child communication and the timing of the recording sessions was scheduled to correspond with the normal classroom routine. The choice of permanent video recording was made to enhance the accuracy of transcription and coding, and the data collection was completed by the researcher to maintain consistency.

There was an attempt to collect 30 minute language samples, from each subject, in both contexts. Not only was the goal of collecting 30 minute language samples an attempt at improving on the samples of earlier researchers, but it was realized that in this study, the contexts involved more participants than just the subject and teacher of previous studies. It was felt that the contexts which generally involved one teacher and three or four children would lead to a reduction in the number of communicative events that a given participant would make. Because of a variety of factors, including teacher/subject characteristics, it was not always possible to collect 30 minutes of interaction for each subject, in each context. The samples from the Lesson context ranged from 20:10 to 50:12 minutes in length with a mean of 24:46 minutes, while the samples from the Snack context ranged from 15:00 to 25:00 minutes with a mean length of session being 20:39 minutes.

For the sake of continuity two 20 minute samples were selected for each subject, one from each context. In only two instances the maximum sample was 15 minutes. Thus, the combined sample of 40 minutes was collected for six subjects, and samples of 35 minutes, for the remaining two subjects.

In the Lesson contexts, discourse generally involved concrete teaching materials and a teacher directed plan. This context often involved seat work on the floor or at tables and chairs, but for the six youngest subjects movement and changes of location did occur. In the Snack context the arrangements usually involved sitting at tables and chairs for a significant portion of the time. Generally, the discourse in the Snack context focused on events leading up to snack, discussion about the food, the process of cleaning up, and the transition to other activities.

All of the language samples were recorded from the observation rooms, through one-way glass windows, using the audio system designed for the observation room. These conditions resulted in a lower quality audio/visual signal, but still produced a product which was acceptable for language transcription and coding. The benefits of recording the natural classroom interactions with minimal disruption were thought to outweigh the poorer audio/visual signal. The recording of the language samples from the observation rooms eliminated the need to condition the participants to the presence of the camera. Although the teachers were informed of the recording schedule, the subjects were generally unaware of the data collection.

Prior to each recording session the researcher informed the teacher of the recording schedule, identified the subjects of interest, and ensured that the equipment was in position. The teachers were asked to carry on with their usual or planned routine, and not to direct any special attention to the subjects of interest. During the recording the researcher's involvement was kept to a minimum. Only in a few instances was an interjection required when the subjects were obscured or the teacher queried the adequacy of the seating or positioning.

Equipment

The language samples were recorded on Sony ES-HG, VHS videocassette tapes with a Panasonic Industrial color camera and video recorder. A small, sensitive, clip-on lapel microphone was "loose coupled" to the existing audio equipment of the observation rooms to improve the audio signal. The playback equipment used for transcription and coding procedures was an RCA Stereo video cassette recorder and a 40 centimeter Sony Trinitron television monitor.

Editing

Following the recording of the language samples for each child, the samples were dubbed onto a composite tape to prevent loss or damage to the original recordings. Beyond this duplication to a second tape there were no alterations made to the recordings. The transcription and subsequent analysis were completed by using the composite tapes. The originals were not used because the need for multiple viewing gave rise to some concern of tape deterioration.

E. Data Analysis and Instruments

Order of Analysis

The analysis procedures of the study consisted of six steps. These six steps will be discussed under subsequent subheadings of (a) pretranscription protocols, (b) transcription, and (c) posttranscription checklists. The first two steps involved the scoring of the General Aspects Protocol (GAP) and the Pragmatic Protocol (PP) from the videotape. The third step involved the transcription of the videotape, and Steps 4, 5, and 6 involved the analysis of the transcript in the areas of CIs, presupposition, and social organization of discourse using the appropriate checklists.

Pretranscription Protocols

The pretranscription protocols consisted of the General Aspects Protocol (GAP) by Cole and St. Clair-Stokes (1984a/b) and the Pragmatic Protocol (PP) of Prutting and Kirchner (1983). In this study, these two instruments were adapted to address the first and second research questions.

The GAP was adapted for use in this study, to ensure that there was a similarity in the educational environments and teacher/subject interactions. Specifically, the GAP was adapted to highlight differences in the teacher/subject communication, in the different classroom environments, which may account for variations in the pragmatic language competencies of the hearing impaired preschool subjects.

The ten aspects included in the GAP are those features of mother/child discourse which promote the child's awareness and use of the auditory-verbal channel for communication. For this study, nine of the ten aspects were adapted to the teacher/subject situation with only minor editorial changes. The sixth aspect which considered the mother's style of interacting with her child, was rewritten for this study, to identify differences in the language samples which reflected such educational style features as classroom structure and type of lesson/teaching format. It was expected that the completion of the GAP would require multiple viewing of the videotapes, however, in practice one or two viewings of the 20 minute Lesson segments was sufficient. A copy of the GAP may be found in Appendix C.

The purpose of the PP was to address the second research question which considered comprehensive or pattern differences in the pragmatic language competencies of the hearing impaired preschool subject with regard to age, method of communication, and educational environment. Thus, the PP was adapted for this study to provide an overall communicative index for each subject, and like the GAP, to identify specific pragmatic features of the subjects' communication worthy of further or more specific investigation. The PP was included since it represents one of the few formal instruments for studying pragmatic language skills with demonstrated clinical application (Duncan & Perozzi, 1987; Prutting & Kirchner, 1987).

The PP consists of 30 pragmatic components of language extrapolated from the developmental child language literature. These pragmatic components were included since they are found in the speech and language of normal children five years of age or older. Thus, for this study, the scoring instructions were modified to direct the evaluator in a consistent manner, in those cases where the child did not demonstrate the parameter in question. A copy of the PP may be found in Appendix D.

The assessment of the teacher/subject communication and the subject, in particular, using the GAP and the PP was based on the videotaped language sample from the Lesson context. The Lesson context was selected because (a) the language sample best reflected the parameters used by Cole and St. Clair-Stokes (1984a/b) and Prutting and Kirchner (1983), (b) in each classroom the Lesson context was directed by a teacher of the hearing impaired, (c) the routine of the Snack context does not always demonstrate or allow for the demonstration of the items covered in the protocols, and (d) using the same context simplified the reliability procedures.

To score the GAP and the PP the researcher and the independent observer viewed the videotapes. After watching the videotape the protocols were completed for each subject. (The complete information on scoring of the GAP and PP may be found in Appendix C and D.) Like the GAP, the PP was scored after one or two viewings.

In order to complete the PP on each subject it was important that judgements of appropriate or inappropriate were made relative to the subject, partner, chronology, and the context. The parameters were coded as appropriate if they were judged to facilitate the communicative interaction or were neutral. Inappropriate parameters were those which detracted from the communicative exchange and penalized the individual, or were absent. It was necessary to be cognizant of the fact that the PP was designed to be used with children five years of age or older. Thus, it was understood that some of the parameters would not be present in the younger subjects and in this study they would be marked as "inappropriate".

Transcription

The process of transcription followed the viewing of the selected segments and scoring of the GAP and PP. The first step was to record the most obvious productions of the subjects, teachers, and other participants. Once this draft was available, the next step was to enter the more subtle CIs, which may or may not have had an auditory component. The following requirements were considered when identifying the CIs:

1. A social contact was in progress, (i.e., the attention of the participants was directed toward each other, another individual, or mutual object), or the subject was attempting to establish a contact through obtaining or directing another's attention, or talking to self
2. The behavior was discrete, that is, the behaviors had a definable beginning and end.
3. The behavior included one or more of the following elements: formal sign, gesture, change in facial expression, change in direction of gaze, vocalization, and verbalization. No responses, where responses would be appropriate, were also noted.

Once the participants' CIs were recorded, the transcript was formatted so the intentions could be numbered to assist in later counting and coding procedures. This format: (a) identified the temporal relationship of the subject's, teacher's, and other participants' communicative acts; (b) elaborated on contextual situations; and (c) clarified gestures, signs, actions, vocalizations, and verbalizations. Examples of the transcripts and a full description of the transcription conventions may be found in Appendices E and F.

Posttranscription Checklists

Step four of the data analysis involved classifying each subject's CIs for the two independent criteria of range and form. Day's (1986) system of categorization was used to categorize range since it represented the most detailed system, and the form categorization system of Skarakis and Prutting (1977) was also selected for its comprehensiveness.

As discussed in the review of the literature, Day's (1986) compilation of the range of CIs include six major categories of speech acts: Conversational Device, Description, Request, Performative, Response, and Uninterpretable. These six categories include those speech acts that Dore (1977, 1978a/b) found in the utterances of three-year-old hearing children, as well as those intentions which Skarakis and Prutting (1977), Curtiss et al. (1979), and Day found in the communication of hearing impaired children. A total of 35 different CIs, within the six major categories, were considered in this study.

In the case of the form of the subjects' CIs, this study employed the Skarakis and Prutting (1977) system with five defined categories: Motor Activity, Gesture/Sign, Combination, Vocalization, and Verbalization. As in the scoring of the subjects' CIs for range, each CI was assigned to one of these five categories. In no instance were the intentions assigned to two categories, rather a decision was made as to which category was most applicable. Copies of the categorization system for range and form, along with information to assist scoring may be found in Appendices G and H.

The Presupposition Checklist (PC) was completed as the fifth step in the data analysis. This checklist was developed to quantify the subjects' ability to take the perspective of their communicative partner and to reflect these specific informational needs of the partner in their CIs. (A copy of the PC and information to assist scoring may be found in Appendix I.) The PC is based on the Roth and Spekman (1984a/b) framework and examines aspects of:

1. *Informativeness* , the understanding that information is not necessarily explicit in a stated message, but must be shared through the linguistic structures of (a) deictics--words which have a shifting reference with each communicative turn, (b) indirect/direct reference involving the correct use of articles to introduce and sustain a discussion, and (c) cohesive structures which contain information which becomes redundant in a conversation and may be omitted as the conversation continues for the sake of linguistic economy.
2. *Consideration of the partner* , whereby the speaker's CIs reflect an understanding of the speech situation and the communicative partner with regards to age, status, cognitive level, and past experiences.
3. *Consideration of the social context* , where the speaker's CIs reflect an awareness in changes of the social context, for example, the speaker who compensates or assists the listener by speaking louder when the environment is noisy.

The Social Organization of Discourse Checklist (SODC) was the final instrument, and sixth step, in the data analysis procedure. (A copy of the SODC and information to assist scoring may be found in Appendix J.) Like the PC, the SODC was developed so the discourse regulating behaviors, identified by Roth and Spekman (1984a/b), could be quantified. Thus, the subjects' CIs were analyzed for skills in the areas of:

1. *Turntaking* , where the individual must be able to function in both the speaker and listener role.
2. *Conversational skills* , which include (a) initiating a suitable topic, (b) taking turns at maintaining that topic, (c) shifting to new areas as necessary, and (d) terminating or ending the conversation appropriately.
3. *Breakdown/repair* , the skill of having and knowing how to prevent a conversation from ending prematurely because of a misunderstanding on behalf of the listener or a lack of clarity on the part of the speaker.

F. Observer Training and Reliability

Reliability refers to consistency in measurement. Wolery, Baily, and Sugai (1988), and Kazdin (1977) describe four sources of error in measurement (a) the complexity of the measurement system, (b) observer drift, (c) observer bias or expectancies, and (d) observer reactivity. To minimize these sources of error in this study interrater reliability checks were necessary. Observer training and reliability studies were conducted in three different areas (a) the rating of the General Assessment and Pragmatic protocols from the videotaped language samples, (b) the transcription/identification of the CIs from the videotapes, and (c) the accuracy of scoring the four checklists from the transcript, to investigate range and form of the CIs, presupposition, and social organization of discourse.

Protocols

The researcher taught an assistant the basic procedures behind the GAP and PP by (a) reviewing the instructions outlined by the original authors, (b) reviewing examples pertinent to each item, and (c) clarifying the definitions and terms. Practice occurred while observing and scoring language samples not included in the study.

A minimum criteria of 80% agreement (mean reliability) was required between the researcher and assistant. Reliability scores were calculated by dividing the number of agreements by the total number of agreements plus disagreements. Reliability figures for the GAP considered the four educational/linguistic environments, and the reliability study of the PP involved four subjects, one from each of the age/method of communication categories. Reliability for the GAP averaged 97.5 % with a range of 90.0 to 100.0 percent, and the reliability of the PP averaged 87.5% with a range of 80.0 to 100.0 percent. Tables 4 and 5 present the interrater reliability scores for the GAP and PP.

Table 4

Interrater Reliability for the General Aspects Protocol (GAP)

	Age/Environment Category				
Protocol	Oral 3.5	Oral 4.5	Oral 5.5	Sign 4.5	$\bar{X}$
GAP	90.0%	100.0%	100.0%	100.0%	97.5%

Table 5

Interrater Reliability for the Pragmatic Protocol (PP)

	Age/Environment Category				
Protocol	Oral 3.5	Oral 4.5	Oral 5.5	Sign 4.5	$\bar{X}$
PP	100.0%	90.0%	80.0%	80.0%	87.5%

Transcription

The complete corpus of the transcription was done by the researcher. The accuracy and detail of the transcript were enhanced by the overlapping and repetitive procedures. Generally, the transcription of the language samples for the subjects in the Oral environment required 15 minutes per minute of videotape, while the transcription of the subjects from the Sign Assist program required 30 minutes per minute of tape. Transcription took approximately 140 hours.

Reliability was also evaluated for identifying the subjects' CIs from the videotape. Analysis was completed by comparing the accuracy of the researcher's transcript with that of a speech-language pathologist who was familiar with general transcription procedures and had received instruction on the procedures developed for this study.

Reliability scoring employed a time sampling method where the assistant randomly selected three consecutive minutes (15%) of the Language context and transcribed only the CIs of the subject in question. The accuracy of the transcript was then compared to the principal researcher's transcript. Reliability was calculated by dividing the number of agreements by the total agreements and disagreements in the three minute segment. Reliability checks were done on each of the eight subjects' language sample from the Lesson context. The interrater reliability ranged from 77.8% to 100.0 % with a mean of 85.3 percent. Table 6 presents the interrater reliability scores for the identification/transcription of CIs.

Table 6

Percentage Reliability for the Identification/Transcription of CIs

Subjects									
S1	S2	S3	S4	S5	S6	S7	S8	Range	$\bar{X}$
77.8	81.3	80.0	100.0	84.0	82.4	90.0	86.7	77.8--100.0	85.3

Checklists

Since the complete scoring of the checklists was conducted by the principal researcher, the reliability for the scoring of the checklists was accomplished by having an independent rater score between 10 and 15% of the CIs, for each of the subject, on each of the checklists.

The training procedures for the research assistant included familiarization, discussion, and clarification of the coding procedures for each instrument. The pre-training also included independent practice using examples from the transcripts. The hours of training for the research assistant were found to vary with the nature of the pragmatic aspect being considered. The CI Form checklist, and most of the aspects on the PC and and SODC required little practice to acquire acceptable levels of agreement between the researcher and independent rater. However, the reliability of the scoring on the CI Range took approximately 5 hours of training and high levels of reliability were particularly difficult to achieve with two of the Oral subjects and the two Sign Assist subjects. The point-by-point reliability was calculated by the formula previously described, and an overall reliability of 80% was judged an adequate level of consistency. The reliability measures for the 4 checklists are presented in Table 7.

Table 7

Interrater Reliability for the Checklists

	Checklist			
Subject	CI-Range %	CI-Form %	PC** %	SODC*** %
S1	78.6	81.3	77.5	93.4
S2	84.0*	83.3	87.5	94.4
S3	77.8	94.4	82.5	100.0
S4	85.4*	100.0	85.0	83.3
S5	80.8	84.0	95.0	87.0
S6	88.9	94.1	85.0	84.6
S7	73.1	92.0	80.0	76.3
S8	72.3	90.5	65.0	82.3
Average	80.1	89.9	82.2	87.7

* First attempt to establish reliability resulted in percentages of agreement of 73.4 and 68.3, retraining and practice were necessary.

** Based on results of Message Information, and sensitivity to Communication Partner and Social Context Variables.

*** Based on results of Social/Nonsocial Speech, identification of Conversational Skills, and Cause, Initiator, Attempt, Strategy, and Outcome of Breakdown/Repair sequence.

G. Internal and External Validity

Internal and external validity are important considerations for the generalization of findings. Wolery et al. (1988) define internal validity as being how well the design of a study controls for potential explanations for changes found in the dependent variable. Furthermore, Wolery et al. have indicated that external validity considers the extent to which the findings of a study are generalizable to other subjects, behaviors, settings, measurement differences, and situations. Descriptive studies, by their nature, obtain observations without manipulation of the independent variables, so it is hoped that passive observers, their instruments, and techniques, will have a minimum of effect on the phenomena under investigation. Nevertheless, each of the possible threats to internal and external validity will be addressed separately and the measures taken to control, minimize, or eliminate them as threats to this study, will be discussed.

Threats to Internal Validity

Wolery et al. (1988) identified history, maturation, and instrumentation, as threats to internal validity in, non-testing, non-intervention, descriptive studies.

History

History refers to the possibility of external events, which occur before or during a study, having an influence on the results. Thus a study which extends over a substantial period of time is particularly susceptible to the history threat. However, for this study the data were collected over the relatively short period of time of five weeks, so this should have minimized the influence of "history".

Maturation

The maturation threat refers to any changes that occur within the subjects themselves during the duration of the study. These changes could be physical or mental growth as well as fatigue, habituation, or adaptation to the situation. In this study, the relatively brief time frame for data collection should have protected against maturation posing a threat to internal validity.

Instrumentation

Any change in a measuring instrument or assessment procedure during the course of a study is considered in the instrumentation threat. Human observation and judgement of behavior are particularly prone to this threat. In this study the use of videotape equipment to record the communicative discourse was chosen to improve the researcher's accuracy of the transcription and data analysis. Furthermore, the use of an independent observer to monitor the agreement was employed to ensure against observer drift.

Threats to External Validity

Wolery et al. (1988) identified, generality across subjects, generality across settings, responses, and time, and reactive assessment, as threats to external validity in non-testing, non-intervention, descriptive studies. The nature and purpose of descriptive studies are such that generalization of results is not a primary goal. However, it is still important to be aware of the potential restrictions that exist since this type of research is frequently used to develop hypotheses for future studies and investigations.

Generality Across Subjects

Generality across subjects refers to the extent that the results of one study can apply to others. Specific characteristics of the subjects such as age, intelligence, socio-economic status, and the educational background of parents may all limit the extension of the results to other populations. It was recognized in this study that it was impossible to have a homogeneous group of subjects. Although efforts were made to consider age, pure tone hearing loss, and intelligence, other factors such as parent education, socio/economic level, etiology of hearing loss, diagnoses of hearing loss, application of hearing aids, and remedial activities history, were difficult to control.

Generality Across Settings, Responses, and Time

The degree to which any of these factors will influence this study will likely be reflected in the reliability of the results. The standardization of the contexts and the videotaping of the language samples were efforts to improve the results in this area. To a degree, the concern with this threat was minimized by the choice of collecting the responses within the familiar setting of the classroom, while the children were engaged in regular classroom activities, at appropriate times.

Reactive Assessment

Reactive assessment refers to the extent to which participants are aware that they are being assesed or observed and the extent to which this awareness influences the way the participants behave or respond. The problem of reactive assessment in this study was greatly minimized for the subjects, since the language samples were collected from the observation room. The teachers were aware of the data collection process, but it is unlikely that the collection of the language samples had much influence on their behaviors given their experience with numerous observers watching their performance from the observation rooms.

H. Limitations

Since the intention of this study was to present a more comprehensive perspective on the pragmatic language competencies of hearing impaired preschool children, the time invested per subject in transcription and analysis was significant. However, the labor intensive procedure limited the data collection to only eight subjects. It is recognized that considerable differences in the competencies of the subjects still exist even though there was an attempt to find children who were similar. Given the pre-experimental design and the small number of subjects, it was not the intention to statistically demonstrate differences between subjects or groups on the basis of ages, communication method, or educational environment. Rather the aim was to (a) identify or highlight possible differences which could be investigated in future experimental studies, and (b) to consider the implications that the subjects competencies may have for educational programming.

I. Summary

The chapter presented information on the (a) research design, (b) subjects, (c) data collection, (d) instruments and data analysis, (e) observer training and reliability, (f) internal and external validity, and (g) limitations of the study. The following chapter will present the results of the study.

IV. RESULTS

A. Introduction

The results of the study are presented in six sections. The order of these sections correspond to both the sequence of the research questions and the steps involved in data analysis using the various protocols and checklists. The first two sections focus on the results from the General Assessment Protocol (GAP) and the Pragmatic Protocol (PP). The third and fourth sections outline the results considering the range and form of the CIs, and the fifth and sixth sections present the results from the studies of presupposition and social organization of discourse. These last two sections are further subdivided into a series of subheadings which reflect the components considered in these areas. Each section will conclude with a summary.

B. General Aspects Protocol (GAP)

As discussed in Chapter III, the GAP was included in this study to provide, in a global manner, objective information on the interactive behaviors of the teachers and subjects. It was hoped that the GAP would demonstrate similarities or differences in the interactive environment, either of which, could have a significant effect on how subsequent results would be viewed. Thus, the following research question was posed.

Question 1.

Are there differences in the teacher/subject communication within different classroom environments which may account for variations in the pragmatic language competencies of hearing impaired preschool children?

The four interactive environments or classrooms were evaluated on the 10 items in the GAP. The results of the eight subjects and four teachers on the GAP are summarized in Table 8.

Table 8

Results of the General Aspects Protocol (GAP)

	Subject/Teacher							
	T1		T2		T3		T4	
Aspect	S1	S2	S3	S4	S5	S6	S7	S8
1. Teacher communicates within sensory range of subject (vocal intensity, pitch, visual field, level).	Y	Y	Y	Y	Y	Y	Y	Y
2. Teacher communicates in a normal unexaggerated fashion.	Y	Y	Y	Y	Y	Y	Y	Y
3. Teacher uses amount of gesture appropriate for the age of the subject.	Y	Y	Y	Y	Y	Y	Y	Y
4. Teacher generally avoids use of and/or elicitation of single words/signs.	Y	Y	Y	Y	Y	Y	Y	Y
5. Teacher pauses long enough for subject to take a communicative turn.	Y	Y	Y	Y	Y	Y	Y	Y
6. Teacher accepts communication from subject through verbal, visual, smiling, touching responsiveness.	Y	Y	Y	Y	Y	Y	Y	Y
7. Teacher mostly communicates about events, people, and objects in the immediate environment.	Y	Y	Y	Y	Y	Y	Y	Y
8. Teacher generally uses sentences of an appropriate length and complexity in communicating.	Y	Y	Y	Y	Y	Y	Y	Y
9. Teacher uses audition/vision maximizing strategies.	Y	Y	Y	Y	Y	Y	Y	Y
10. Lesson/Teaching activities for context of language sample. Structured versus Open-ended format.	S	S	0	0	S	S	0	0

Y = Yes, N = No, S = Structured, 0 = Open-ended

The consistently positive reports on the GAP aspects suggested that the teachers are very sensitive to those factors which promote the use of the auditory/oral and visual channels for communication, although the emphasis on the visual is more noticeable with the Sign Assist subjects. Furthermore, the consistency of these results would also suggest that the classroom/educational environment of the eight subjects would be very similar given the aspects considered in the GAP.

The differences in the language samples of the Lesson context, relative to the structured versus open-ended activity, is worthy of further study. From a qualitative point of view, it appears that the different formats support the development or consolidation of different pragmatic language competencies. The language samples from the structured lesson format appeared to contain a high number of clear, social CIs with a number of repetitive forms, however the language samples from the open-ended lesson format had fewer turns, while addressing a larger number of topics. The possible relationship between lesson format and pragmatic language skills will be discussed in Chapter V along with the results of subsequent and related investigations.

Summary of Results--GAP

1. The consistency of the scores for teacher/subject interaction on the GAP supports the position that the interactive environments for the subjects is similar.
2. The large number of positive reports suggest that the teachers are very sensitive to those factors which promote the use of the auditory/oral channel as well as the visual channel for communication.

3. The structured versus open-ended format of the lesson/teaching context appears to support the development or consolidation of different pragmatic language competencies.

C. Pragmatic Protocol (PP)

The evaluation of the subjects' pragmatic language competencies using the PP had the following purposes (a) to provide an overall communicative index for each subject, (b) to highlight the range and pattern of pragmatic deficits that the subjects of different ages and educational/linguistic environments may present, and (c) to identify specific pragmatic features of the subjects' communication which may require more specific investigation. Specifically, the following research question was asked.

Question 2.

Are there comprehensive or pattern differences in the pragmatic language competencies of hearing impaired preschool children with regard to age, method of communication, and educational environment?

To consider the comprehensive communicative index the subjects' percentage of "appropriate" and "inappropriate" pragmatic parameters was calculated. As a group, the range of "percentage appropriate" was 40.0 to 83.3 with a mean of 62%, and conversely the range of "percentage inappropriate" was 16.7 to 60.0 with a mean of 38 percent. Table 9 summarizes the number and percentage of the pragmatic parameters marked appropriate or inappropriate for the eight subjects.

The communicative indices suggest differences in the youngest and oldest Oral subjects in favor of a developmental progression to improved scores with increased age. This trend is even more evident when the extreme score of S4 is removed. Differences in the communicative index with regard to method of communication or educational environment were not demonstrated.

At an individual level the communicative index and display of parameters marked inappropriate in Figure 3 clearly identify S4 and S7 as having the considerably weaker skills than their age and educational/linguistic environment cohorts--S3 and S8. Thus, the protocol would appear to be useful at identifying individuals with strengths or weaknesses in a variety of pragmatic language areas.

Table 9

Percentage and Number of Pragmatic Parameters Marked Appropriate or Inappropriate for Each Subject in the Three Age Groups and Two Linguistic Environments

			Appropriate		Inappropriate	
Group	Age	Subject	Number	Percentage	Number	Percentage
Oral	< 3.5	S1	18	60.0	12	40.0
		S2	16	53.3	14	46.7
Oral	~ 4.5	S3	19	63.3	11	36.7
		S4	12	40.0	18	60.0
Oral	> 5.5	S5	25	83.3	5	16.7
		S6	22	73.3	8	26.7
Sign Assist	~4.5	S7	14	46.7	16	53.3
		S8	23	76.7	7	23.3

To highlight the differences in the range or pattern of pragmatic deficits the descriptive analysis involved a study of the subjects' performance profiles across all 30 communicative parameters. Figure 3 illustrates the patterns of pragmatic deficits at the group and/or subgroup level.

Linguistic Environment	Oral						Sign Assist	
Age	< 3.5		~ 4.5		> 5.5		~ 4.5	
Subject	S1	S2	S3	S4	S5	S6	S7	S8
VERBAL ASPECTS								
Speech act pair analysis	●	●		●				
Variety of speech acts	●	●	●	●			●	
Topic selection	●	●	●	●		●	●	
Topic introduction	●	●		●		●	●	
Topic maintenance				●				
Topic change	●	●	●	●	●	●	●	●
Turntaking initiation	●	●		●				
Turntaking response								
Turntaking repair/revision	●	●	●	●	●	●	●	
Turntaking pause time				●				●
Turntaking interruption/overlap					●		●	
Turntaking feedback to speaker				●				
Turntaking adjacency		●	●	●		●	●	
Turntaking contingency			●					
Turntaking quality/conciseness	●	●	●	●			●	
Specificity/accuracy	●	●	●	●			●	
Cohesion	●	●	●	●	●	●	●	●
Varying communicative style								
PARALINGUISTIC ASPECTS								
Intelligibility	●	●	●	●			●	●
Vocal intensity	●			●		●	●	●
Vocal quality		●	●	●	●	●	●	●
Prosody		●		●			●	●
Fluency								
NONVERBAL ASPECTS								
Physical proximity								
Physical contacts								
Body posture							●	
Foot/leg & hand/arm movements							●	
Gestures								
Facial expression								
Eye gaze								

Figure 3. Pragmatic parameters marked inappropriate for the eight subjects in three age groups and two educational/linguistic environments.

The visual analysis of the Nonverbal Aspects suggests all of the subjects regardless of age, method of communication, or educational environment, have acquired appropriate skills in this area. However, the Paralinguistic and Verbal areas contained a substantial number of inappropriate ratings for six of the eight subjects.

In the Paralinguistic aspects only Fluency was consistently rated as appropriate across all individuals and groups, while Vocal Quality received the most inappropriate ratings regardless of the groups and subgroups. Intelligibility was a problem area for all but the oldest Oral subjects.

With the Verbal Aspects, the younger Oral subjects appear to have weaker skills than either the older Oral or Sign Assist subjects in (a) speech acts, (b) topic, and (c) turntaking, whereas the repair/revision parameter seemed to be a common problem for most subjects. Each of the presupposition aspects of (a) cohesion, (b) specificity/accuracy, and (c) varying communicative style demonstrated a different pattern. The younger Oral subjects were again rated as having more problems with specificity/accuracy than either the older subjects or those in the Sign Assist group. The use of cohesion was a weakness for all subjects, and conversely varying the communicative style did not appear to be a problem for any subject.

With one of the purposes of the PP being that of identifying specific pragmatic features of the subjects' communication which may require more specific investigation, the descriptive analysis included highlighting the pragmatic parameters most frequently marked inappropriate for all of the subjects. The results of this ranking are presented in Table 10. It was found that 13 of the 30 parameters accounted for 82% of the inappropriate ratings of the eight subjects regardless of age, method of communication, or educational environment. Furthermore, six of these parameters--cohesion, topic change, revision/repair, vocal quality, intelligibility, and topic selection, accounted for 46% of the inappropriate ratings.

Table 10

Pragmatic Parameters Most Frequently Marked Inappropriate for the Group of Subjects

Rank	Pragmatic Parameter	Frequency of Nomination
1	Cohesion, Topic Change	8 / 8
2	Turntaking Revision/Repair, Vocal Quality	7 / 8
3	Topic Selection, Intelligibility	6 / 8
4	Variety of Speech Acts, Topic Introduction, Adjacency, Specificity/Accuracy, Vocal Intensity	5 / 8
5	Quality/Conciseness, Prosody	4 / 8

Summary of Results--Pragmatic Protocol

1. The protocol fulfilled the desired purposes of the study by providing over-all communicative indices, highlighting ranges and patterns of pragmatic deficits, and by helping to identify pragmatic features which require more specific investigation.
2. Although the subjects' communicative index on the PP did not identify consistent group or age differences, the index was helpful in identifying those individuals who are generally weaker in the area of pragmatic competencies, in this case S4 and S7.

3. Visual analysis showed: (a) S4 and S7 with the largest number of inappropriate parameters and S5 and S8 with the fewest, (b) few problems with Nonverbal aspects; (c) the oldest oral subjects had the fewest problems with Paralinguistic aspects while the Sign Assist subjects showed consistent weaknesses; and (d) the younger Oral subjects appeared weaker than either the Older Oral or Sign Assist subjects with the Verbal areas involving speech acts, presupposition, and social organization of discourse.
4. Thirteen parameters accounted for 82% of the inappropriate ratings and six of these parameters accounted for 46% of the inappropriate ratings.

D. Communicative Intentions--Range (CI Range)

The ranges of the subjects' CIs, from both contexts, were categorized according to the criteria of Day (1986). This system consists of 6 general and 35 specific subcategories. An elaboration of the criteria for the CI Range categories may be found in Appendix G. The third and fourth research questions address the topic of CI Range.

Question 3.

Do hearing impaired preschool children of different ages, methods of communication, and educational environments exhibit the same range of CIs on the categorization system used in the Day (1986) study?

Question 4.

Do hearing impaired preschool children of different ages, method of communication, and educational environments show different frequency of usage of the CI Range and Form categories?

Prior to presenting the results of CI Range and the other checklists some overview information may be useful. The eight subjects produced a total of 1,325 CIs in the 310 minutes of videotaped language samples. The number of CIs per Lesson and Snack context was 704 and 621 respectively; however, with a correction for the 10 minute time difference between the two contexts, the estimated number of CIs for the Snack context would be approximately 680. Thus, a similar number of CIs were produced in both contexts, with a slightly higher number being found in the Lesson context. Figure 4 illustrates the subjects' individual production of CIs in the two contexts. This figure identifies, S4 as having a very low production of CIs in both contexts--a fact which likely reflects a late diagnosis of the hearing loss, and a restricted language experience background, and S6 who also has a lower production than the Oral "age mate", a younger Oral peer--S3, and the younger Sign Assist subjects--S7 & S8. A reason for this lower production may reflect individual differences and an environment where the classmates are very demanding of communicative participation.

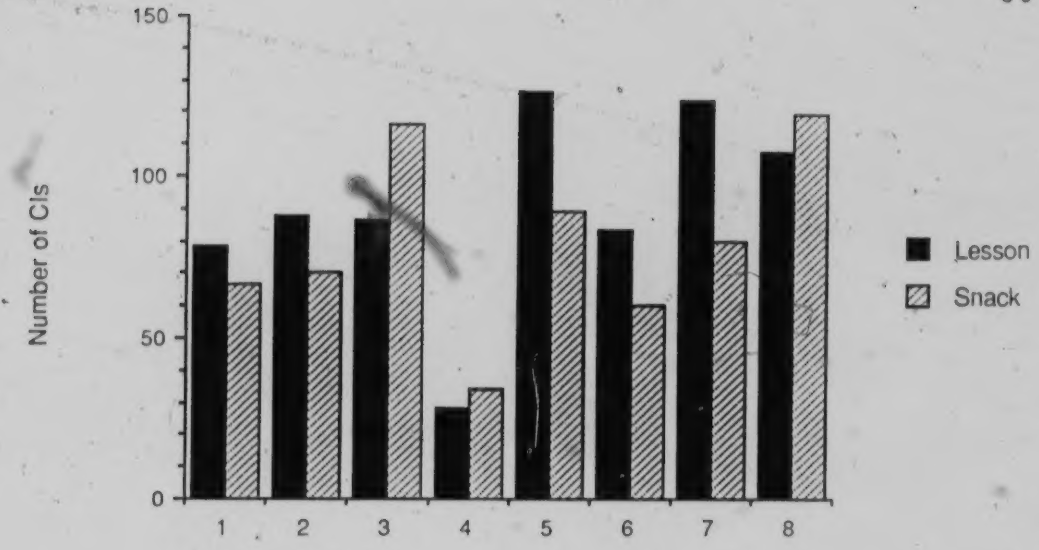

Figure 4. Subjects' production of CIs in the Lesson and Snack contexts.

To address Question 3, the 1,325 acts were studied for their range characteristics at group and individual levels. As a group, the subjects' demonstrated the ability to produce all of the CIs considered in the Day (1986) categorization system. Furthermore, visual inspection indicates that virtually all of the range categories are also found in both contexts. Table 11 presents the number and percentage of CIs in each of the range category, and Table 12 illustrates each subject's individual CI range when the Lesson and Snack contexts were combined.

Table 12 identifies several important features at the subgroup and individual level. All of the major categories of CIs were found in the communicative sample of the subjects regardless of age, method of communication, and educational environment. However, some subjects did not demonstrate all the subcategories in every context. S4, with the lowest CI production, demonstrated the most restricted range, while, S5, with a much higher CI production, demonstrated the most extensive range of CIs.

Table 11

Number and Percentage of CIs Found in Each of the Range Categories

Category	Lesson		Snack		Total	
	Number	%	Number	%	Number	%
CONVERSATIONAL DEVICE	**173**	**24.1**	**166**	**26.2**	**339**	**25.1**
1. Check	3	0.4	1	0.2	4	0.3
2. Comment	15	2.1	10	1.6	25	1.9
3. Direct Attn (obj.)	20	2.8	12	1.9	32	2.4
4. Direct Attn (self)	42	5.9	38	6.0	80	5.9
5. Imitate	91	12.7	90	14.2	181	13.4
6. Offer	2	0.3	5	0.9	7	0.5
7. Polite	0	0.0	10	1.6	10	0.7
DESCRIPTION	**67**	**9.3**	**42**	**6.6**	**109**	**8.1**
8. Event	18	2.5	10	1.6	28	2.1
9. Identity	17	2.4	12	1.9	29	2.1
10. Location	18	2.5	6	0.9	24	1.8
11. Possession	4	0.6	5	0.8	9	0.7
12. Property	10	1.4	9	1.4	19	1.4
REQUEST	**47**	**6.6**	**83**	**13.1**	**130**	**9.6**
13. Action	18	2.5	14	2.2	32	2.4
14. Object	9	1.3	48	7.6	57	4.2
15. "Wh"	13	1.8	14	2.2	27	2.0
16. Yes/no	7	1.0	7	1.1	14	1.0
PERFORMATIVE	**48**	**6.7**	**56**	**8.8**	**104**	**7.7**
17. Claim	4	0.6	3	0.5	7	0.5
18. Game	9	1.3	13	2.1	22	1.6
19. Greet	5	0.7	2	0.3	7	0.5
20. Joke	8	1.1	9	1.4	17	1.3
21. Pattern	2	0.3	0	0.0	2	0.1
22. Protest	11	1.5	17	2.7	28	2.1
23. Role play	5	0.7	6	0.9	11	0.8
24. Scold	0	0.0	5	0.8	5	0.4
25. Warn	4	0.6	1	0.2	5	0.4
RESPONSE	**354**	**49.4**	**269**	**42.4**	**623**	**46.1**
26. Agree/disagree	88	12.3	51	8.0	139	10.3
27. Attend	54	7.5	36	5.7	90	6.7
28. Attribute	0	0.0	1	0.2	1	0.1
29. Clarify	12	1.7	21	3.3	33	2.4
30. Explain	1	0.1	2	0.3	3	0.2
31. Express/evaluate	15	2.1	13	2.1	28	2.1
32. Statement	40	5.6	46	7.6	88	6.5
33. "Wh"	85	11.9	31	4.9	116	8.6
34. Yes/no	59	8.2	66	10.4	125	9.3
UNINTERPRETABLE	**28**	**3.9**	**18**	**2.8**	**46**	**3.4**
35. Unknown	15	2.1	5	0.8	20	1.5
TOTAL	**704**		**621**		**1325**	

Table 12

Production of CIs in Each Range Category--Combined Lesson and Snack Contexts

Communication System	Oral						Sign Assist	
Age	< 3.5		≈ 4.5		> 5.5		≈4.5	
Subject	S1	S2	S3	S4	S5	S6	S7	S8
CONVERSATIONAL DEVICE								
1. Check	-	-	-	-	1	-	-	3
2. Comment	1	4	11	-	3	3	2	1
3. Direct Attn (obj.)	9	2	5	-	5	1	2	8
4. Direct Attn (self)	3	18	9	4	15	6	19	6
5. Imitate	25	23	20	7	19	14	25	48
6. Offer	2	-	1	-	1	3	-	-
7. Polite	-	1	2	1	3	-	-	3
DESCRIPTION								
8. Event	3	4	14	-	3	1	1	1
9. Identity	3	4	1	-	6	1	13	1
10. Location	4	4	5	-	3	3	2	3
11. Possession	-	-	2	-	2	5	-	-
12. Property	2	1	5	0	4	3	3	1
REQUEST								
13. Action	3	4	2	-	8	6	8	1
14. Object	3	9	9	3	12	2	8	11
15. "Wh"	1	3	4	1	7	6	2	3
16. Yes/no	1	-	5	1	3	2	1	1
PERFORMATIVE								
17. Claim	3	-	-	-	2	-	1	-
18. Game	1	8	2	2	-	4	4	1
19. Greet	-	1	-	-	1	2	3	-
20. Joke	1	1	0	-	7	2	[illegible]	4
21. Pattern	-	-	-	-	2	-	-	-
22. Protest	3	2	1	3	5	7	4	3
23. Role play	5	-	-	-	-	-	4	2
24. Scold	-	-	-	-	2	2	-	1
25. Warn	-	-	1	-	3	1	-	-
RESPONSE								
26. Agree/disagree	14	18	13	6	18	25	9	36
27. Attend	11	7	7	11	5	8	16	25
28. Attribute	-	-	-	-	1	-	-	-
29. Clarify	3	1	8	2	6	2	3	8
30. Explain	1	-	1	-	1	-	-	-
31. Express/evaluate	2	4	2	-	4	-	13	3
32. Statement	2	11	14	8	26	5	14	8
33. "Wh"	16	12	10	1	19	16	17	25
34. Yes/no	12	11	38	11	18	5	18	12
UNINTERPRETABLE								
35. Unknown	8	-	5	-	-	2	2	3
MISSING CI CATEGORIES	**8**	**11**	**7**	**19**	**2**	**8**	**9**	**8**
TOTAL CIs	**143**	**157**	**199**	**61**	**215**	**136**	**196**	**221**

The following section focuses on the fourth Research Question, i.e., do the hearing impaired preschool children of different ages, methods of communication, and educational environments show a different frequency of usage of the CI range categories? In order to investigate whether the subjects have a similar frequency of CI usage under similar environments, the rank order of the subjects' use of CI Range categories was compared using Kendall's Coefficient of Concordance (Ferguson, 1981). A coefficient of $\underline{w} = 0.763$ ($p < .01$) was obtained, which supported the position that the subjects do indeed use a similar arrangement of CI categories within similar contexts, regardless of age and method of communication. Table 13 indicates the percentage of each major CI Range category found in the subject's total language sample, and the rank order of the CI Range categories which is based on these percentages.

Table 13.

Percentage of Sample and Rank Order for Major Categories of CIs for Each Subject

	Subjects							
	S1	S2	S3	S4	S5	S6	S7	S8
Range	% Rank	% Rank	% Rank	% Rank	% Rank	% Rank	% Rank	% Rank
Res.	42.1	40.5	46.0	62.9	45.6	42.7	44.3	51.8
	1	1	1	1	1	1	1	1
Con.	27.6	30.4	23.8	19.4	21.9	18.9	23.6	30.5
	2	2	2	2	2	2	2	2
Req.	5.4	10.1	9.9	8.1	14.0	11.2	9.4	7.1
	6	3	4	3	3	4	3	3
Per.	9.0	7.6	2.0	8.1	10.2	12.6	9.4	4.9
	3	5	6	3	4	3	3	4
Des.	9.0	8.2	13.4	0.0	8.4	9.1	9.4	2.7
	3	4	3	6	5	5	3	6
Uni.	6.9	0.6	4.0	1.6	0.0	6.3	4.4	3.5
	5	6	5	5	6	6	6	5

A correlation across subjects for rank order of CI categories w = 0.763 ($p > .01$).

Res. = Response	Con. = Conversational Device
Req. = Request	Per. = Performative
Des. = Description	Uni. = Uninterpretable

Given that the rank order of the major categories, by frequency of use, is similar for the subjects regardless of their other characteristics, it is important to consider some patterns which occur in the subjects' use of the subcategories within each of the general categories.

The CI range category of Response accounted for the largest percentage of the subjects' CIs in both the Lesson and Snack contexts. Within this range category, the subcategories of "Agree/Disagree Response" and "Wh question Response" were the most frequent in the Lesson context. While the subcategories of "Yes/No Response" and "Agree/Disagree Response" were the most frequent in the Snack context. These finding suggests discourse differs substantially from one context to another.

The second largest category of CI produced by the subjects was that of Conversational Devices. In this case, the specific subcategories of "Imitation" and "Directing Attention to Self" were the most common intentions regardless of linguistic context.

The third largest category of CI produced by the subjects was that of Description in the Lesson context and Request in the Snack context. These two categories were both found to be in fifth place when the other context was considered. In both cases the results would appear to be appropriate. A larger number of "Requests" fits intuitively in the Snack context, while "Describe" intentions would not be unusual in the Lesson context.

Performative was the fourth largest category of CI produced by the subjects. Regarding the specific intentions, the subcategories of "Protest" and "Game" provided the bulk of the instances in both contexts. The smallest category of CI produced by the subjects was that of Uninterpretable. The finding of Uninterpretable being the least frequent major category suggests that regardless of age or method of communication, the subjects are capable of producing a large number of CIs to a level so that an average of 97 % can be interpreted by a practiced listener.

Summary of Results--CI Range

1. The subjects as a group produced similar numbers of CIs in both contexts.

2. The subjects as a group demonstrated the full range of categories in both contexts.
3. All six categories were demonstrated by the group, subgroup, and individual, but it was not uncommon for certain individual subcategories to have a high frequency of use within the general category.
4. The rank order of frequency of use was found to be similar for each subject. Thus, differences in the frequency of category use, on the basis of age, and method of communication, were not demonstrated. The Sign Assist subjects and their Oral peer produced similar numbers of CIs and also demonstrated a similar Range.
5. Individual strengths and weakness were clearly evident certain subjects who had a substantially restricted range or a low total number of CIs.

E. Communication Intentions--Form (CI Form)

The subjects' CIs from both contexts were described in terms of the form in which they were expressed. In this study, each CI was categorized as one of the following forms extracted from the Skarakis and Prutting (1977) system: (a) motor activity, (b) gesture/sign, (c) combination of gesture/sign and vocalization or verbalization, (d) vocalization, and (e) verbalization. An elaboration of the criteria for the CI Form categorization may be found Chapter III under Posttranscription Checklists or Appendix H . The fourth research question considered in the study of CI Range also applies to the study of CI Form.

Question 4.

Do hearing impaired preschool children of different ages, methods of communication, and educational environments show different developmental patterns or frequency of usage of the CI Range and Form categories?

Considering the results with regards to method of communication used by the subjects, several distinctions were noted. The Oral subjects were found to use all five form categories, with 4 of the 6 subjects using the verbalization category most frequently, followed by 5 of the 6 subjects using the combination form as the second most frequent method of expressing their CIs. In contrast, the Sign Assist subjects most frequently used the combination form, followed by the categories of gesture/sign and motor activity. Only in a few instances were the Sign Assist subjects found to use either the vocalization or verbalization forms in isolation.

The effects of age were difficult to ascertain in this group of Oral subjects. There may well be a developmental trend toward increased use of verbalization as a form for expressing the CIs, but this trend is not clear given the variable results of the subjects. Furthermore, it appears that the form used to express the CIs is also interrelated with other factors such as instruction, the context, and the individual. Figure 5 illustrates the forms subjects used to express their CIs in the combined Lesson and Snack contexts.

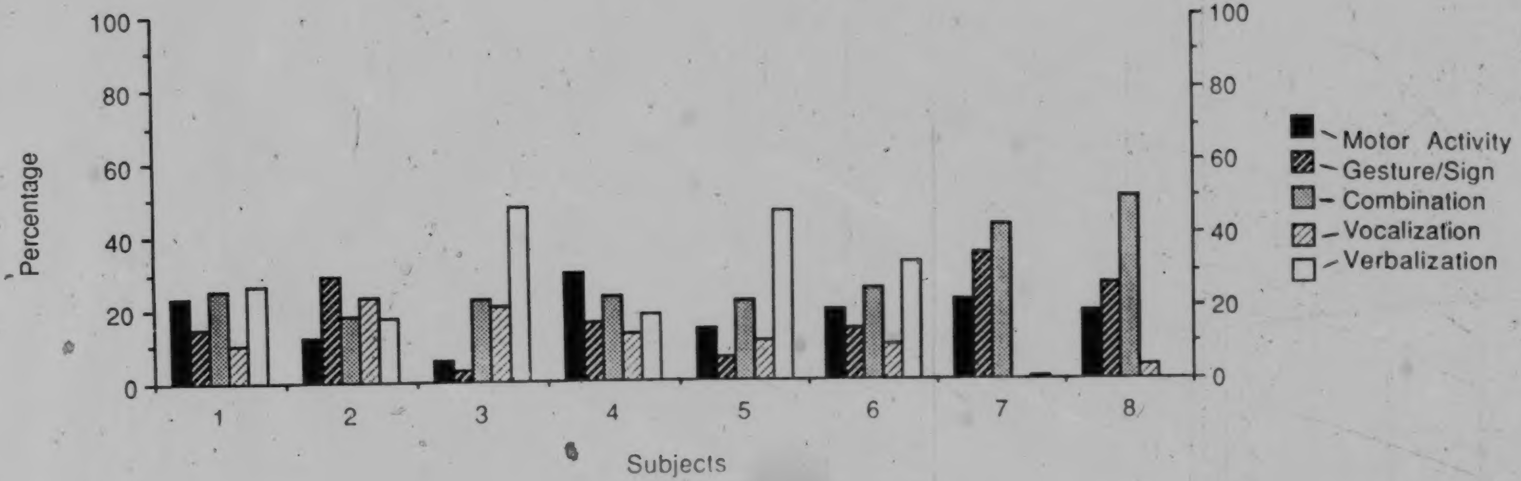

Figure 5. Subjects' use of Form to express CIs: Lesson and Snack contexts combined.

Considering the relationship between CI Form and the educational environment, the youngest Oral subjects in the Snack context were found to have a higher percentage of verbal forms with a decreasing number of combination and motor activity forms, when compared to the Lesson context. In contrast, the older Oral subjects produced a considerably higher percentage of verbal forms in the more structured Lesson context, while in the Snack context the combination and gesture/sign forms increased. In a similar fashion, the Sign Assist subjects had higher percentages of combination forms in the Lesson context, and then a higher number of gesture/sign forms in the Snack context. Figure 6 illustrates the forms the subjects used to express their CIs in the Lesson and Snack contexts.

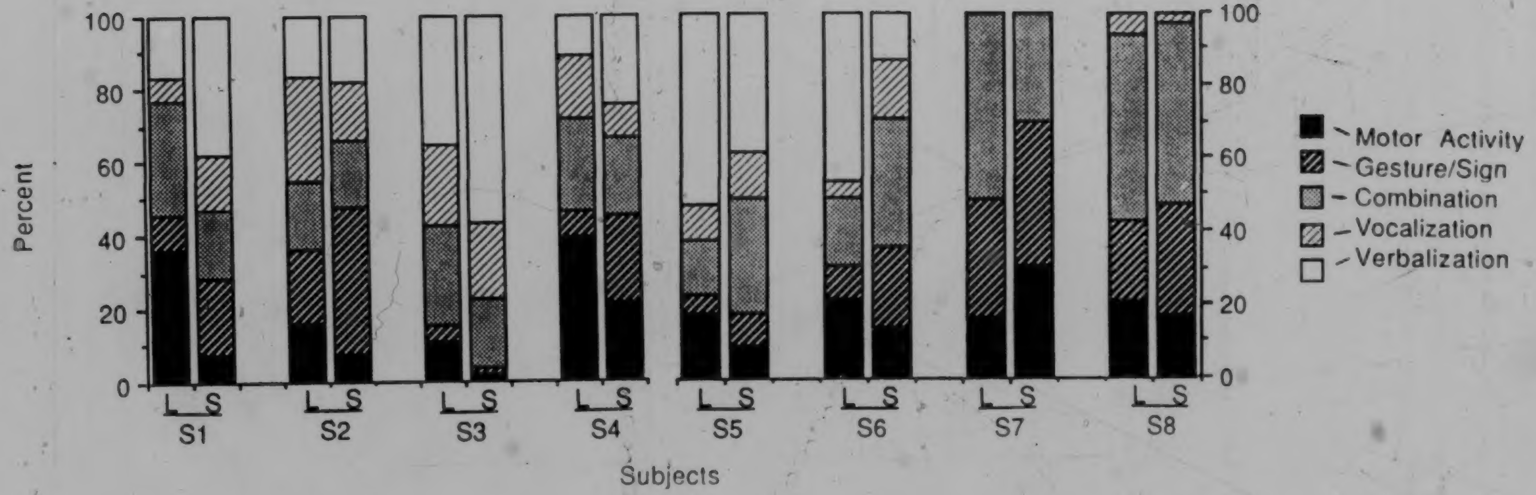

Figure 6. Subjects' use of Form to express CIs: Lesson and Snack contexts.

Summary of Results--CI Form

1. The oral subjects' most frequent form for expressing their CIs was verbalization, while the Sign Assist subjects' used a combination form consisting of gesture/sign and vocalization/verbalization.
2. For the Oral subjects, maturation and a structured educational Lesson context appear to support an increased use of verbalization as the primary form for expressing their CIs.
3. Subjects' method of expressing their CIs was found to change with changes in context.

F. Presupposition Checklist (PC)

The information in the area of presupposition was acquired by examining the subjects' CIs against the Presupposition Checklist (PC) whose components address the fifth research question. An elaboration of the contents of the PC may be found in Chapter III, while the checklist and scoring information is located in Appendix I.

Question 5.

Do hearing impaired children of different ages, methods of communication, and educational environments show different pragmatic language competencies in the area of presupposition?

For organizational purposes the following headings and subheadings will be used to present the results in the area of presupposition:

1. Informativeness.
    - (a) Message Information/Characteristics of CIs,
    - (b) Deictics,
    - (c) Articles, and
    - (d) Cohesive Structures.
2. Communication Partner.
    - (a) CI's Relationship to Audience, and
    - (b) Subject's Insensitivity to Audience.
3. Social Context.
    - (a) Subjects' CI Awareness/Feedback Channels, and
    - (b) CIs and Context Changes.

Informativeness

Message Information

To study the message information content of the subjects' CIs were categorized in one of four groups, (a) Novel--added new information, (b) Redundant--repeated information, (c) Unrelated, and (d) NA--no information (but subject showed continued attention or demonstrated behavior appropriate to the context).

As a group, the largest number of CIs were found to be Novel, followed by Redundant and NA, with the unrelated category being the most infrequent. Since Novel and Redundant messages are generally considered necessary for the promotion of communication, all subjects showed a developed awareness in this area. The Message

Information content of the subjects' CIs in both contexts are summarized in the box and whisker display of Figure 7. In these box plots, the subjects' with the highest and lowest percentage of CI category would be represented by the circles at the 10th and 90th percentile, and the three horizontal lines on the box represent the 25, 50, and 75th percentiles.

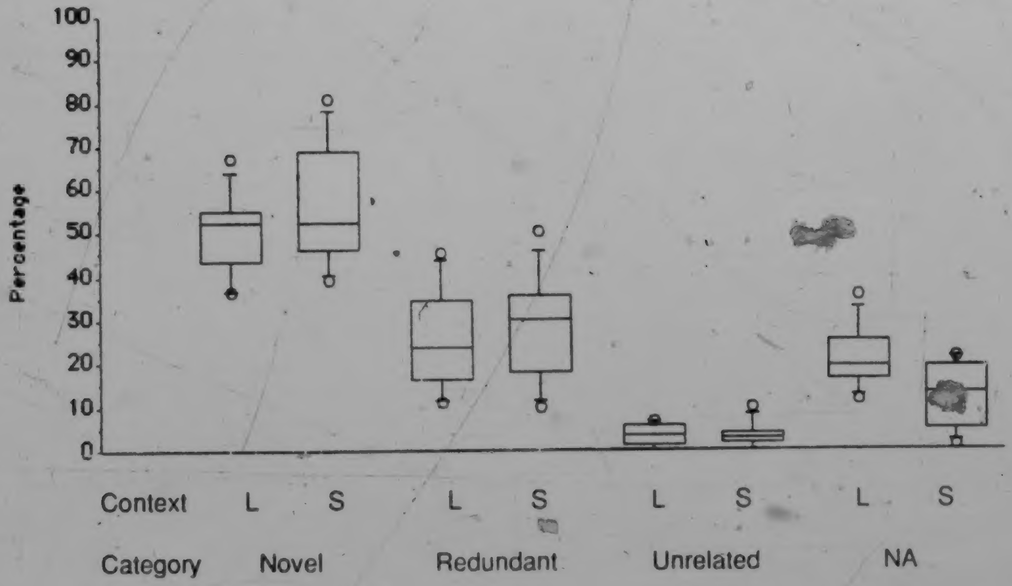

Figure 7. Box plots summarizing the Message Information content of the subjects CIs in Lesson and Snack contexts.

The subjects' Novel and Redundant messages were found to account for an average of 80.5 percent (range 73.9 to 88.1) of their total number of CIs. It would seem that all of the subjects have acquired a general level of competency in the

Message Information area given their high percentage of intentions which would support or promote continued discourse.

By visually analyzing Figure 8, which presents the Message Information rating of each subjects' CIs in the Lesson and Snack contexts, there are indications that the Oral subjects' Novel intentions may increase with age, but this is difficult to ascertain given the variation that the subjects show as individuals in different contexts. Little difference in the percentage of Novel and Redundant intentions for method of communication, was demonstrated by the similar aged Oral (S3 & S4) and Sign Assist (S7 & S8) subjects, although the Oral subjects had fewer Unrelated intentions when the contexts were combined. It is also possible that the educational environment, with the structured lesson format increased the number of Redundant CIs for S5 and S6. Figure 8 presents the Message Information of each subject's CIs in both contexts.

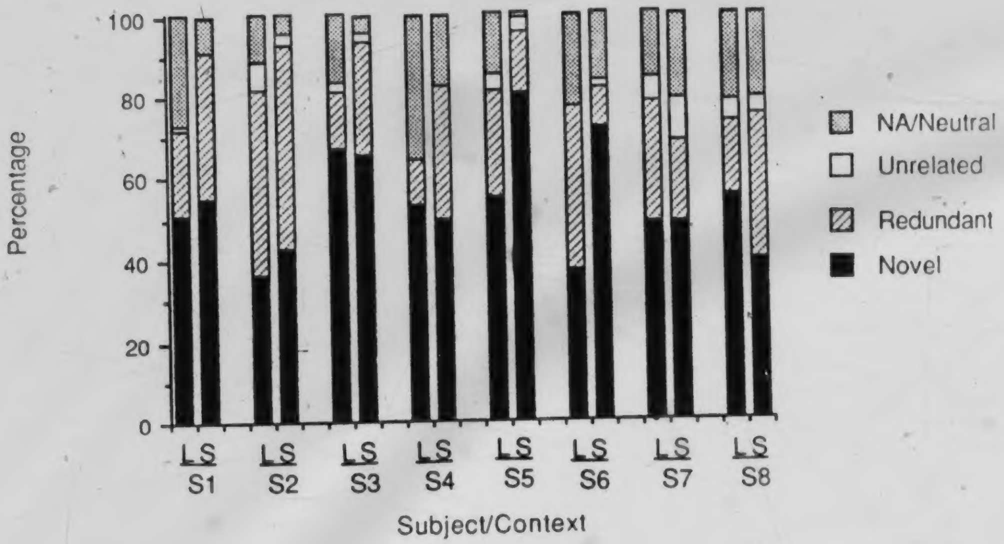

Figure 8. Message Information rating of subjects' CIs in the Lesson and Snack contexts

Characteristics of Subjects CI's

The subjects' intentions, which were categorized as Novel, Redundant, or Unrelated for Message Information, were then rated as being either Informative/Clear or Vague/Ambiguous. On average, over 70% of the subjects' CIs were found to be Informative/Clear, with a slightly higher number of Informative CI's being found in the Snack context for six of the eight subjects.

Some subtle variation was noted for communication method and educational environment. The Sign Assist subjects were found to have a higher percentage of CIs rated as Informative than did their similar aged Oral subjects (74.1 & 74.0 for S7 & S8, versus 66.1 & 63.0 for S3 & S4). With respect to environment or context differences, the oldest Oral subjects had substantially higher numbers of Informative/Clear intentions in the Lesson context where a more structured activity format was used (83.1 & 95.3 for the Lesson context and 70.5 & 56.0 for the Snack context). Figure 9 summarizes the Informative/Clear and Vague/Ambiguous rating of all the subjects' CIs in both contexts by box and whisker displays, and Figure 10 illustrates each individual subject's CI characteristics in both contexts by stacked bar graphs.

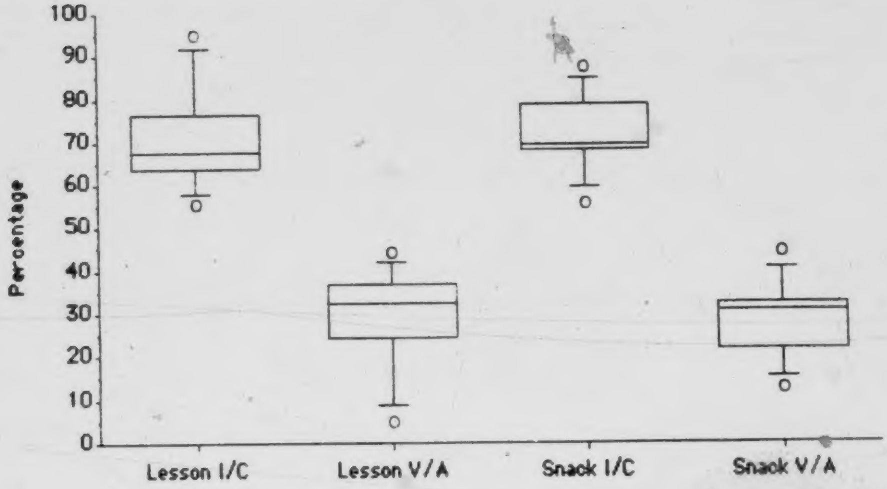

Figure 9. Box plots of the characteristics of the subjects' CIs for Informative/Clear and Vague/Ambiguous: Group results.

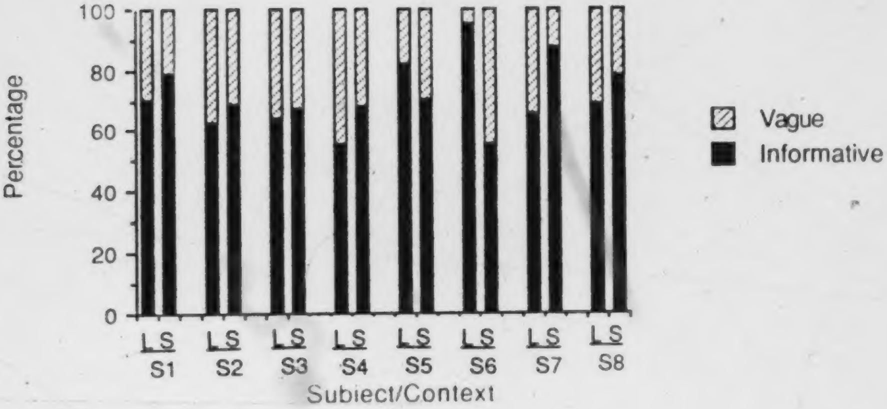

Figure 10. Characteristics of subjects' CIs for Informative/Clear and Vague/Ambiguous in the Lesson and Snack contexts.

Deictics

In this study, the subjects' use of the deictics, including personal and demonstrative pronouns, adverbs of location and time, and shifting reference verbs, were either absent or found only infrequently in the CIs that made up the language samples. Personal pronouns had the greatest number of instances with 87 occurrences in over 1300 intentions. Interestingly, four subjects, one from each age and educational/linguistic environment, were responsible for 77% of those instances of personal pronoun use.

With regard to the other forms of deictics considered in this study, the findings suggest a developmental sequence. It appears that along with personal pronouns, demonstrative pronouns represent an earlier developing deictic skill, while adverbs of location and time, and the shifting reference verbs develop later. Similarly, it would appear acquisition of deictics follows the usual developmental sequence with imitation preceding spontaneous production. In this study the younger subjects' use of deictics favored imitative production, while the older subjects produced more spontaneous examples. Table 14 summarizes the subject's use of deictics. In this case the numbers in the Table represent the actual number of times the subjects' used these linguistic devices.

Table 14

Use of Deictics by Each Subject

Subject	Personal Pronouns	Demonstrative Pronouns	Adverb Location	Adverb Time	Verbs	Spontaneous Imitative Ratio
S1	10	0	1	0	0	3:8
S2	5	0	0	0	0	1:4
S3	13	4	5	0	2	16:8
S4	3	0	0	0	0	1:2
S5	26	8	2	0	0	31:5
S6	4	2	4	0	2	8:4
S7	8	2	0	0	0	7:3
S8	18	4	1	0	0	21:2
Total	87	20	13	0	4	88:36

Articles

Like deictics, the articles "a" and "the" were found infrequently in the CIs of the subjects. Of those instances of article use, the two oldest Oral subjects were responsible for 72% of the spontaneous production and 52% of the total production, while the six younger subjects were responsible for 48% of the total and 81% of the imitated production. This imitative versus spontaneous finding would again support the usual developmental sequence of imitation preceding spontaneous production.

An additional finding regarding the subjects' use of articles involved the educational environment or context where the language samples were collected. The majority of article use (76 percent) was found in the Lesson context where more formal production of language is encouraged, while the use of articles in the more informal educational environment or context of Snack was limited to 24 percent. Table 15 summarizes the individual results for the use of articles with regard to total number of occurrences, type of production, and the context of occurrence.

Table 15

Use of Articles, Production Characteristics, & Context of Occurrence for Each Subject

	Total	Production		Context of Occurrence	
Subject	Occurrences	Spontaneous	Imitated	Lesson	Snack
S1	8	0	8	5	3
S2	1	0	1	1	0
S3	4	1	3	0	4
S4	1	0	1	0	1
S5	7	6	1	5	2
S6	17	11	6	17	0
S7	0	0	0	0	0
S8	8	3	5	7	1
Total	46	21	25	35	11
Percent		46	54	76	24

Cohesive Structures

In this study, the use of the cohesive structures of Reference, Substitution, and Conjunction was minimal. Only the Ellipsis form of cohesive structure was found in significant numbers, with almost twice as many occurrences being found in the more structured educational environment of the Lesson context. It appears that certain types of Ellipsis, especially those relating to question responses, represents an early developing skill, while the use of Reference, Substitution, and Conjunction are later developing for hearing impaired children.

It would also appear that age and maturation are considerations within the acquisition of cohesive forms. Generally the younger subjects' use of Ellipsis did not equal the production of the older subjects. Table 16 summarizes the number of cohesive structures the subjects use in both the Lesson and Snack contexts.

Table 16

Subjects' use of Cohesive Structures in the Lesson and Snack Contexts

	Reference		Substitution		Ellipsis		Conjunction		
Subject	L	S	L	S	L	S	L	S	Total
S1	0	0	0	0	6	9	0	0	15
S2	0	0	0	0	7	9	0	0	16
S3	0	0	0	4	12	20	0	0	36
S4	0	0	0	0	3	1	0	0	4
S5	2	4	0	0	25	4	0	0	35
S6	2	1	0	0	16	2	0	0	21
S7	4	0	0	0	16	8	0	0	28
S8	1	1	1	1	18	8	0	3	33
Total	9	6	1	5	103	61	0	3	188

Communication Partner

CI's Relationship to Audience

The subjects' CIs were evaluated for their sensitivity to the communicative partner. The three categories--Sensitive, Insensitive, and NA/Neutral, considered such things as degree of politeness, correctness of form, appropriateness of dialect, degree of familiarity, inappropriate lack of response, inconsiderate timing, excessive repetition, and inappropriate conversational skills relating to the discourse topic.

As a group, the subjects' CIs were found to be Sensitive or NA/Neutral (conditions considered necessary to support ongoing discourse) 92% of the time, with range 83 to 97 percent. At the individual level, the subjects' percentage of Sensitive CIs showed a variety of levels, with S4 showing a very low percentage of Sensitive CIs and very high percentage of Neutral CIs, a fact which may reflect a lack of linguistic experience. The highest total number of Insensitivities, which may reflect an interaction of individual personalities and educational environmental influences, occurred in the two oldest Oral subjects and one of the Sign Assist subjects during the Snack context. Figure 11 illustrates the sensitivity of the subjects' CIs to the audience variables in each context.

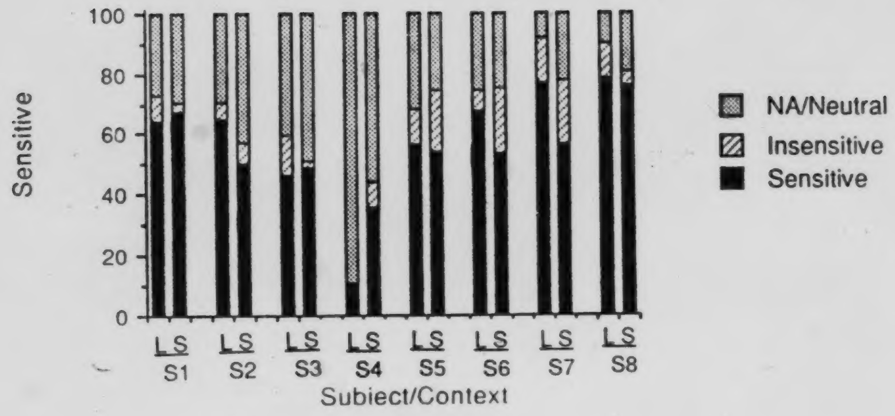

Figure 11. Sensitivity of subjects' CIs to audience variables in the Lesson and Snack contexts.

Subjects' Insensitivity to Audience

Once the subjects' CIs had been identified as being insensitive towards the communicative partner, a decision was made as to what audience variable had been violated. The most frequent forms of audience insensitivity, in the most subjects, were: (a) NR, inappropriate lack of response--26%; (b) Off Topic, discourse regulation problems--23%; (c) Degree of Politeness--18%; and (d) Inappropriate Repetition--11%. It is important to note in Table 17, which summarizes the insensitivity in the subjects' CIs, that two subjects in particular each had two forms of insensitivity which inflated the results. S5 had a high number of insensitivities relating to degree of politeness and topic/discourse regulation, and S7 had a high number of insensitivities involving inappropriate lack of response as well as topic/discourse regulation problems.

Table 17

Subjects' Insensitivities to Communicative Partner

	Identified Insensitivity								
SS	Polite Forms	Form Used	Dialect Used	Degree Known	Absent Speech	Timing Wrong	Excessive Repetition	Off Topic	Total
S1	2	-	-	-	5	-	1	1	9
S2	-	3	-	3	2	-	2	-	10
S3	2	1	-	1	4	2	-	3	13
S4	-	1	-	-	1	1	-	-	3
S5	13	-	-	3	-	3	4	11	34
S6	8	-	-	-	7	1	2	1	19
S7	-	-	-	2	12	4	5	12	35
S8	1	-	1	4	6	-	1	5	18
Totals	26	5	1	13	37	11	15	33	= 141
Percent	18	4	>1	9	26	8	11	23	= 100

Social Context

Subjects' CI Awareness/Feedback Channels

This investigation considered whether the subjects could make modifications to their CIs to reflect their awareness to changes in the channels available for communication. Thus, the subjects' CIs were scrutinized for evidence of "sensitivity" or "insensitivity" when the auditory and visual communication channels were impaired through inadequate amplification, obscured or blocked vision, or general interference and distractions.

The number of CIs demonstrating sensitivity or insensitivity was small for the eight subjects. At a group level, the subjects' percentage of CIs showing sensitivity to inadequate feedback channels was 4.6% with a range 2.5 to 8.1, while the percentage of CIs showing insensitivity was 2.8 % with a range of 0.0 to 9.9.

At an individual level, three of the Oral subjects, S2, S4, and S6 were found to be the least sensitive to instances where the feedback channel was inadequate. S2 in particular had difficulty in this area for unknown reasons. Table 12 presents the number of intentions which were considered to be sensitive or insensitive.

Table 18

Number of Sensitive and Insensitive CIs to the Social Context Variable of Feedback Channel

	Subject								
CIs	S1	S2	S3	S4	S5	S6	S7	S8	Total
Sensitive	8	3	20	2	6	4	10	6	59
Insensitive	4	10	12	3	2	5	1	2	39

CIs and Context Changes

For the most part the study of this aspect of presupposition was minimized by the research design which considered only two specific contexts of Lesson and Snack. However, a number of isolated instances appeared to support the position that the subjects had acquired at least the basic understanding of this skill required to demonstrate sensitivity to context changes. It was not possible to ascertain the degree of refinement the subjects had at this skill given the constraints of the study.

Summary of Results--Presupposition

Informativeness

1. All subjects showed a developed skill at Message Information, with the older subjects demonstrating a better facility. Evidence to suggest a difference on the basis of communication method was not supported. The structured educational environment may be responsible for increasing the number of Redundant CIs.
2. On average, over 70% of subjects' CIs were found to be Informative/Clear, with better results generally favoring the Snack context, the Sign Assist method of communication, subject age/maturity, and a structured educational environment.
3. Subjects' use of deictics was found to be very restricted. Limited examples suggest a developmental sequence for deictics of personal/demonstrative pronouns, followed by adverbs of location/time, and finally shifting reference verbs. Acquisition apparently follows a developmental sequence of imitation preceding spontaneous use.
4. Subjects' use of articles was also found to be very restricted. Acquisition appears to follow a developmental sequence of imitation before spontaneous use, and production favored the Lesson context where structured language is more in evidence.

5. Subjects' use of cohesive structures was minimal. The developmental sequence appears to start with Ellipsis which is followed by Reference, Substitution, and Conjunction, among which the order is unclear.

Communicative Partner

1. As a group 92% of the subjects' CIs were found to be sensitive to the audience and supportive of the ongoing discourse.
2. Individuals showed varying degrees of sensitivity to the audience, with linguistic experience possibly decreasing sensitivity along with increased age and Sign Assist communication method.
3. The most frequent type of insensitivity included (a) inappropriate lack of response, (b) discourse regulation, (c) degree of politeness, and (d) inappropriate repetition.

Social Context

1. The number of CIs demonstrating Sensitivity/Insensitivity to the inadequacy of the communication channel was small, but favored more sensitivity than insensitivity in the majority of the subjects
2. The younger subjects were less likely to demonstrate sensitivity to inadequate channels of communication.
3. The subject's ability to monitor changes in context is likely a developed skill but level of skill was neither studied nor evident.

G. Results in the Social Organization of Discourse

The area of social organization of discourse was investigated using the Social Organization of Discourse Checklist (SODC) whose components addressed the sixth research question. An elaboration of the components of the SODC may be found in Appendix J.

Question 6.

Do hearing impaired children of different ages, methods of communication, and educational environments show different pragmatic language competencies in the area of social organization of discourse?

In order to address this multifaceted question the results of the SODC will be presented under the following the headings and subheadings:

1. Socialized/Nonsocialized Speech.
2. Turntaking/Talking Time.
3. Conversational Skills.
    - (a) Initiation,
    - (b) Maintenance,
    - (c) Shift, and
    - (d) Termination.
4. Breakdown/Repair Sequences.

Socialized/Nonsocialized Speech

Within a communicative situation, children engage in a variety of communicative behaviors, only a portion of which can be considered conversational. Currently, information on the typical proportion of "social/nonsocial" communicative behavior preschool children exhibit is limited, but may be of considerable importance in the assessment situation. To investigate this area the subjects' CIs in both contexts were evaluated on the social/nonsocial criteria. The group results will be presented first, followed by the individual results.

When the subjects' Lesson and Snack language samples were combined, 88% of the communicative behaviors were considered to be social and 12% were identified as nonsocial, such as talking to self. When the group's results were considered with regard to context, the percentage of CIs rated social in the Lesson context averaged 83% with a range of 64 to 92% and a standard deviation of 8.8, while the percentage of CIs rated social in the Snack context averaged 90% with a range of 76 to 99%, and a standard deviation of 8.2. This higher social rating of communicative behavior in the Snack context was also found in seven of the eight subjects.

It would appear that age, as considered in this present study, is not a factor in the percentage of social and nonsocial communicative behavior. In this study the two youngest subjects along with one of the oldest subject were found to have the highest percentages of social communicative behavior (S1 = 92%, S2 = 95%, & S5 = 91%). Similarly, visual inspection of the results considering method of communication or educational environment did not show notable differences for this sample of preschool hearing impaired children. Figure 12 shows the subjects' percentage of social/nonsocial communication behavior in both contexts.

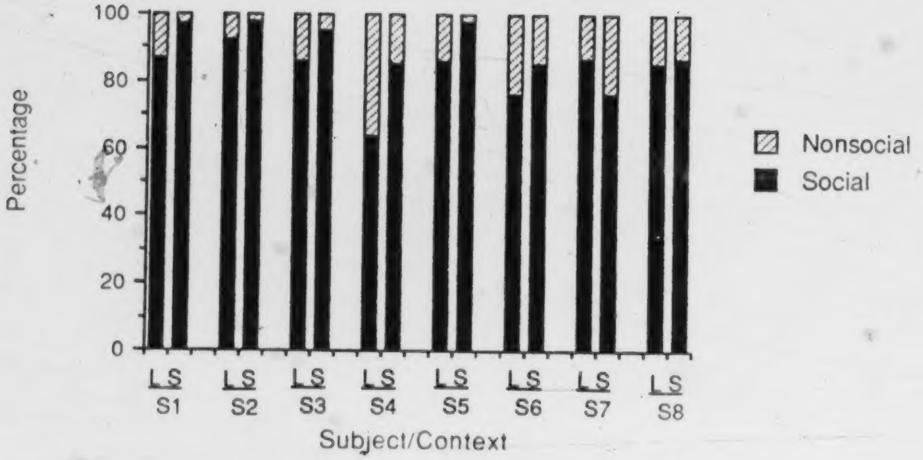

Figure 12. Subjects' percentage of Social/Nonsocial communicative behavior in the Lesson and Snack contexts.

Turntaking/Talking Time

The eight subjects produced from 1.4 to 6.3 expressions per minute for communicative purposes. An average number of expressions per minute was 4.5 considering all 8 subjects, and 4.8 CIs per minute when S4's particularly low production is excluded. As a group the subjects were found to produce the same number of CIs per minute in both the Lesson and Snack contexts.

At an individual level, the subjects were usually found to have a higher production of CIs in one or the other context, a finding which may reflect individual differences, educational environment, and activity format of the educational environment. In the case of S1, S2, S5, and S6, the educational environment with the structured Lesson context appeared to be responsible for the higher production, while the three of the remaining four remaining subjects showed a higher production rate in the Snack context.

The combined results for each subject suggest the possibility of a developmental trend to increased CIs per minute, but this is not clearly indicated with the present results. Furthermore, any relationship between CIs per minute and communication method has yet to be established. Table 19 outlines the subjects' rate of CIs in both the Lesson and Snack context.

Table 19

Subjects' CIs Per Minute in the Lesson, Snack, and Combined Contexts

	Subject								
Context	1	2	3	4	5	6	7	8	X
Lesson	3.9	4.4	4.3	1.4	6.3	4.2	6.2	5.4	4.5
Snack	3.4	3.5	5.8	1.7	5.9	4.0	4.0	6.0	4.5
Both	3.6	4.0	5.1	1.6	6.1	4.1	5.1	5.7	4.5

Conversational Skills

In this area of social organization of discourse, the general findings of the conversational skills will be presented first. Subsequently, the conversational skills of Initiation, Maintenance, Shift, and Termination, will be addressed under separate headings.

The subjects' CIs were studied to see how they applied their range of intentions to conversation. Of interest here was knowing whether or not the subjects could use the CIs to start, continue, change, and end a conversation. The results indicated that seven of the eight subjects had a basic ability to use their CIs to fulfill the roll of the four conversational skill categories, however S4 did not demonstrate an identifiable shift intention in either of the contexts considered in this study. It would appear that S4's underdeveloped skills could be attributed to the two interrelated factors of, (a) the late identification of the hearing loss, and (b) the subsequent delay in acquiring appropriate amplification and participation in an early stimulation program.

The conversational skill of "maintenance" was the subjects' most frequent application of subjects' CIs in the Lesson context and for seven of the subjects in the Snack context. Generally the subjects' second most frequent application was the conversational skill of "initiation", followed by "termination", and almost exclusively the conversational skill of "shift" was the subjects' least frequent CI application.

A significant Kendall's correlation of concordance for the rank order of the conversational skills favored the order of Maintenance, Initiation, Termination, and Shift, in both the Lesson and Snack contexts. Thus, the subjects' use of the conversational categories fell into similar rank orders, but the proportion of each category was found to differ considerably from subject to subject. Figure 13 summarizes the subjects' application of CIs to each conversational category, and Table 20 presents the rank order of each subject's use of the conversational categories in the two contexts.

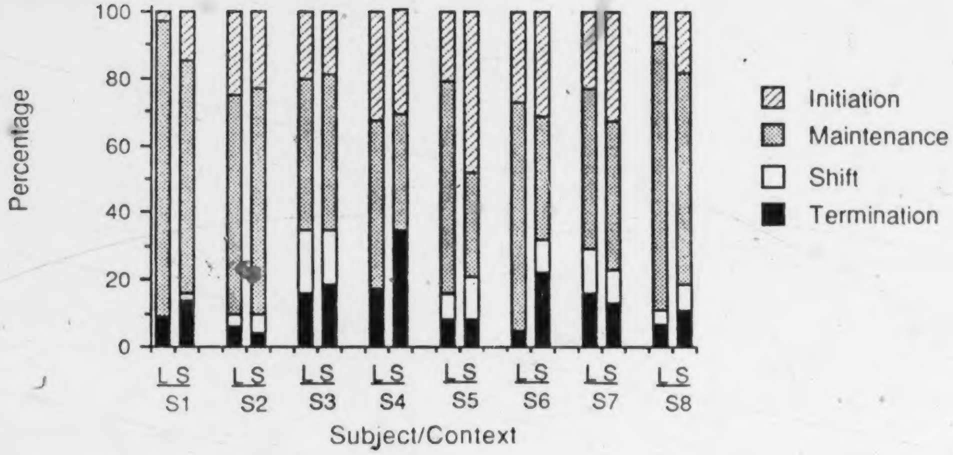

Figure 13. Subjects' percentage of use of each conversational skill category.

Table 20.

Rank Order of Subjects' Use of Conversational Skill Categories in the Lesson and Snack Contexts

	Subject/Context							
Device	1 L--S	2 L--S	3 L--S	4 L--S	5 L--S	6 L--S	7 L--S	8 L--S
Termination	2--3	3--4	4-2.5	3--2	3.5-4	3--3	3--3	3--3
Shift	4--4	4--3	3--4	4--4	3.5-3	4--4	4--4	4--4
Maintenance	1--1	1--1	1--1	1--1	1--2	1--1	1--1	1--1
Initiation	3--2	2--2	2-2.5	2--3	2--1	2--2	2--2	2--2

Coefficient of concordance $\underline{w} = 0.916$, ($p < .01$) for Lesson context.

Coefficient of concordance $\underline{w} = 0.819$, ($p < .01$) for Snack context.

Initiation

The Form of the conversational skill of initiation was investigated by categorizing all of the subjects' initiations by how they chose to express those intentions. The various forms of initiations considered were auditory, visual, physical, and combined. Figure 14 illustrates the types of initiation forms that each of the subjects used.

All subjects were found to use a variety of forms to express their initiations. Four of the six Oral subjects demonstrated skills with all four categories, with four of the six favoring the auditory form. The two youngest Oral subjects had very different distributions of initiation forms from one context to another, while the four older Oral subjects had a similar distribution in each context. The Sign Assist subjects were found to favor the Combined form of initiating a conversation, and like their older Oral peers, the subjects showed a consistency of form use in both contexts.

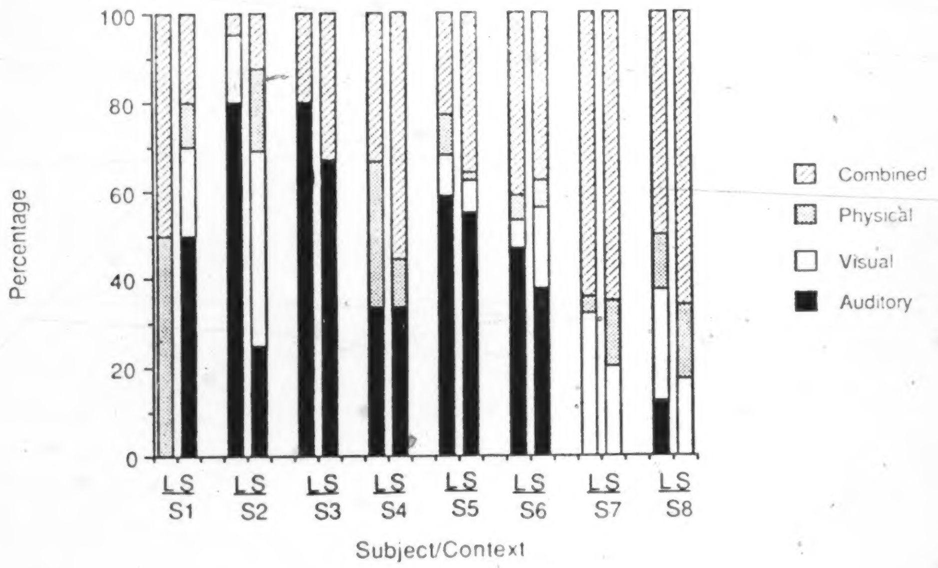

Figure 14. Forms use to express Initiation CIs in the Lesson and Snack contexts.

The Nature and Result of the initiation involved (a) evaluating whether or not the initiations that the subject used were appropriate given the form, the partner, and the context, and (b) whether or not the initiation attempt was successful.

The subjects' percentage of appropriate initiations were found to average 85% with a range of 70 to 100 percent. However, the reasonably high percentage of appropriate initiations did not follow through with a similar success rate. In this study, the success rate of the initiations was found to average 51% with a range of 0 to 73 percent. Differences with regard to age, method of communication, or educational environment were not evident in this study given the random nature of individual strengths and weakness found in the data. Table 21 presents the findings for nature and result of the initiation in both contexts, while Figure 15 illustrates the findings regarding nature and result for each subject when the contexts were combined.

Table 21.

Nature and Result of Subjects' Initiation Skills in the Lesson and Snack Contexts

Subject	Context	Number of Initiations	Nature: Appropriate %	Nature: Inappropriate %	Result: Successful %	Result: Unsuccessful %
S1	L	2	100	0	0	100
	S	10	100	0	70	30
S2	L	20	80	20	20	80
	S	16	75	25	56	44
S3	L	15	73	27	67	33
	S	21	76	24	62	38
S4	L	6	100	0	50	50
	S	9	100	0	73	27
S5	L	22	91	9	55	45
	S	42	98	2	50	50
S6	L	17	71	29	53	47
	S	16	81	19	25	75
S7	L	25	80	20	52	48
	S	20	70	30	70	30
S8	L	8	75	25	50	50
	S	19	89	11	56	44
Total/Mean		268	85	15	51	49

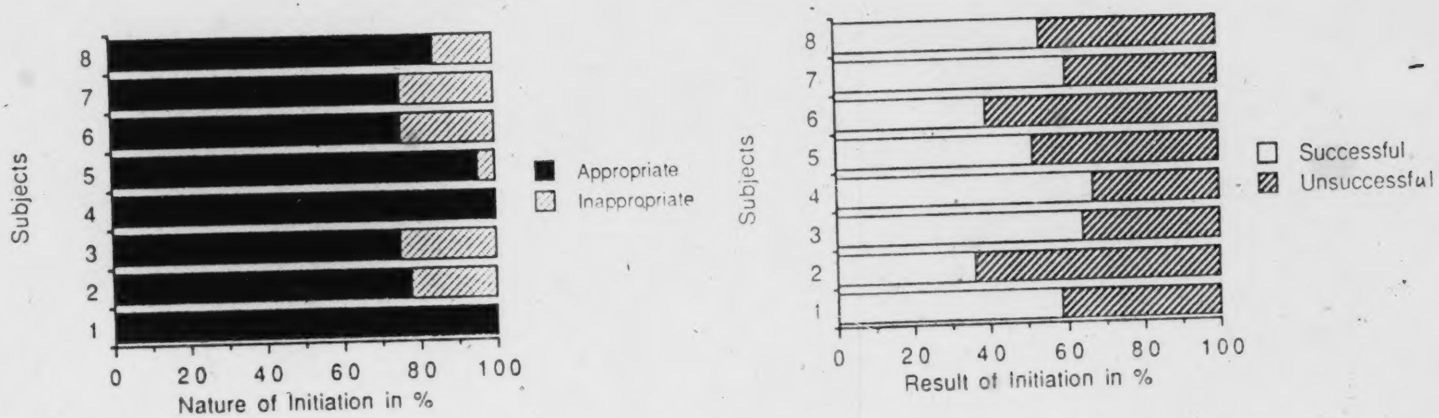

Figure 15. Nature and Result of subject's Initiations: Lesson and Snack contexts combined.

Maintenance

As discussed earlier, the conversational skill of maintenance was found to be the most frequently used skill by the eight subjects in each of the educational contexts. As with the conversational skill of initiation the strategy ot how the subjects' encoded their CIs along with the nature and result or outcome were studied.

The Forms of the conversational skill of maintenance used in this study were: Significant Contributions, Simultaneous Speech, Nonverbal Devices, and Combined Forms. The significant contributions involved CIs which added new or repeated information. Simultaneous speech were those minimally contingent responses which added little to the conversation such as "uh huh" or "yes". The nonverbal devices were forms of minimally contingent responses such as head nods.

All of the subjects were found to use a variety of forms to express their maintenance CIs, with each reflecting a different pattern of usage. The four youngest Oral subjects' most frequent maintenance efforts involved the minimally contingent responses of simultaneous speech and nonverbal devices, whereas the older Oral subjects and the Sign Assist subjects had a more equal distribution of maintenance strategies involving significant contributions and minimally contingent responses. In general the number of combined forms of maintenance was minimal.

Any developmental trends or differences based on the method of communication and educational environment would be purely speculative given the findings of the present study, although there may be a trend for the number of significant contributions to increase with age. Figure 16 illustrates the types of maintenance forms that each of the subjects used.

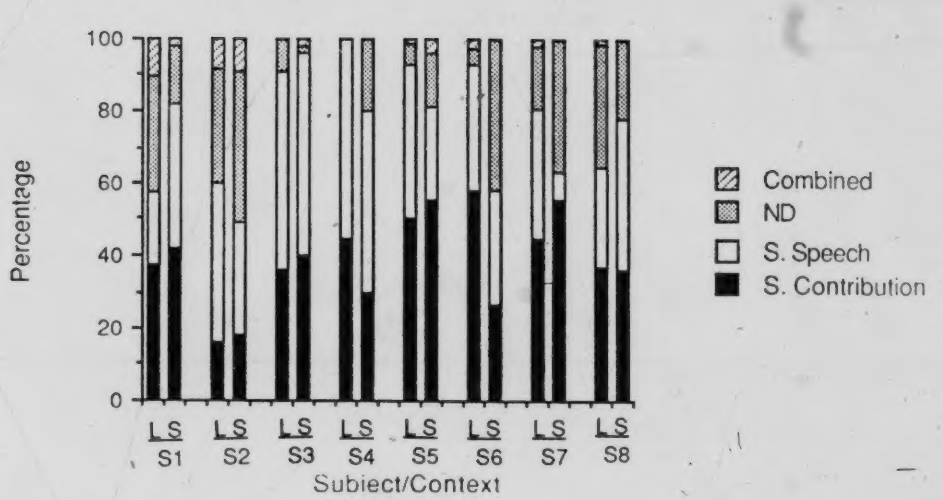

Figure 16. Conversational strategies employed by the subjects' to maintain a conversation.

The Nature and Result of the maintenance involved (a) evaluating whether or not the maintenance strategy that the subject used was appropriate given the form, the communicative partner, and the context, and (b) whether or not the maintenance effort was successful.

With regard to appropriateness/inappropriateness of the maintenance skills, the subjects' maintenance efforts were found to be on average 93% appropriate, with a range of 79 to 100 percent, and in this case, the success rate of the maintenance effort was found to average 86% with a range of 63 to 100 percent. Differences with regard to age, communication method, or educational environment were not evident in this study, as it appears that the conversational skill of maintenance represents an area where the hearing impaired preschooler has acquired a substantial level of competency. Table 22 presents the findings for nature and the result of the maintenance effort in both contexts, while Figure 17 illustrates the nature and result for each subject's results when the contexts were combined.

Table 22.

Nature and Result of Subjects' Maintenance Skills in the Lesson and Snack Contexts

		Number of	Nature		Result	
Subject	Context	Initiations	Appropriate %	Inappropriate %	Successful %	Unsuccessful %
S1	L	59	100	0	93	7
	S	45	100	0	98	2
S2	L	53	93	7	91	9
	S	46	98	2	83	17
S3	L	33	91	9	79	21
	S	50	96	4	86	14
S4	L	9	100	0	67	33
	S	10	90	10	100	0
S5	L	68	99	1	96	4
	S	27	93	7	74	26
S6	L	43	93	7	91	9
	S	19	79	21	63	37
S7	L	52	87	13	81	19
	S	27	89	11	93	7
S8	L	73	85	15	95	5
	S	65	100	0	95	5
Total/Mean		679	93	7	87	13

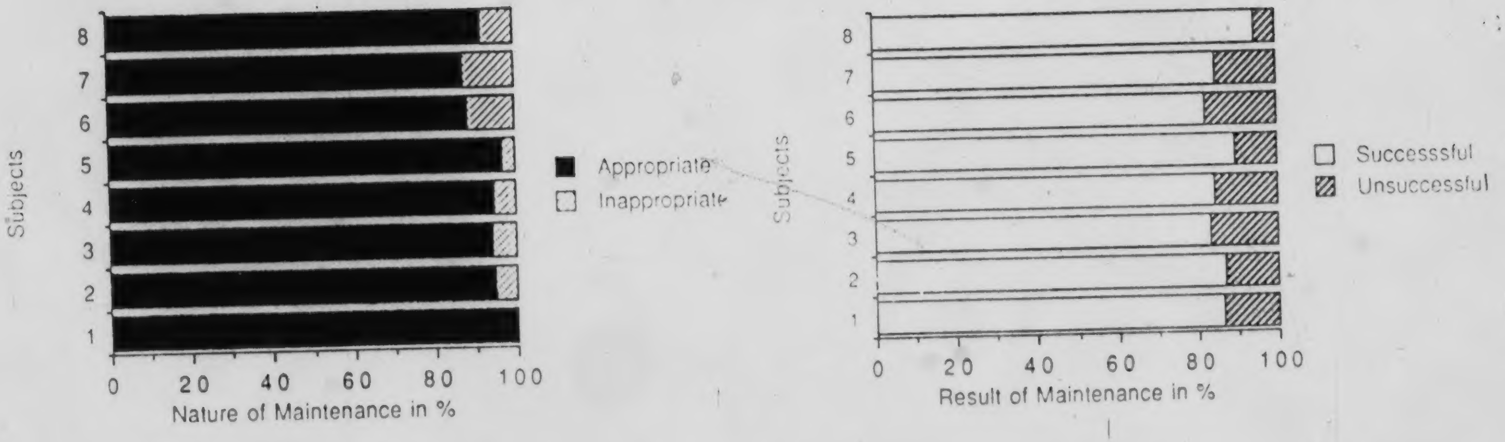

Figure 17. Nature and Result of subjects' Maintenance CIs: Lesson and Snack contexts combined.

Shift

As discussed earlier, the conversational skill of shift was found to be the most infrequent used skill by six of the eight subjects, and in the case of the other two subjects the number of shifts was approximately equal to the skill of termination which was generally the second most infrequently used skill. Like the skills of initiation and maintenance, the nature and result of the shift attempts were studied.

With the conversational skill of shift, six of the eight subjects demonstrated an emerging or basic skill with five or more identifiable occurrences. When the nature of these shifts was taken into account the six subjects were able to make these shifts appropriately 83 % of the time with a range of 55 to 100 percent. However, a lower percentage of the shift attempts were found to be successful, that is an average of 64% and a range of 55 to 83 percent.

The study of shifts also encountered a series of irregularities. In addition to the fact that not all the subjects' appropriate shift attempts were "picked up" by the communication partners as topics, there are also cases where the shift attempt was considered inappropriate, yet it was still successful at being selected as a new topic of conversation. It may be the case that the subjects' unrefined skills at shifting a topic may make identification of the shift by the communicative partner difficult and this in turn leads to the irregular selection pattern of which shifts are selected as topics of conversation.

The subjects' combined shift results, from both contexts, will be presented in Table 23. In this case the results will indicate the actual number of CIs involved rather than the percentage given the very small number of shifts produced.

Table 23

Number, Nature, and Result of Subjects' Shift Skills

Subject	Number of Shifts	Nature Appropriate	 Inappropriate	Result Successful	 Unsuccessful
S1	1	0	1	1	0
S2	7	7	0	4	3
S3	31	25	6	20	11
S4	0	0	0	0	0
S5	20	17	3	11	9
S6	5	5	0	3	2
S7	20	11	9	13	7
S8	12	9	3	10	2
Total	96	74	22	62	34
Percent		77	23	65	35

Termination

As discussed earlier, the conversational skill of termination was found to be the majority of the subjects' second most infrequently used conversational skill. As with the conversational skill of shift the number of incidents, along with the nature and result or outcome were studied.

All eight subjects demonstrated an emerging or basic competency with the conversational skill of termination, with eight or more instances each. When the nature of these terminations is taken into account the subjects were found to be appropriate 91% of the time, with a range of 79 to 100 percent. However, the percentage of the termination attempts found to be successful varied considerably with an average of 67% with a range of 38 to 100 percent.

In this study, many of the success problems with terminations appeared to be related to the use of the Yes/No question where the termination was aborted in favor of a shift by the teacher. It is difficult to identify whether skills at termination favor any of the subjects of different ages, method of communication, or educational environment. In this study, strengths and weaknesses seemed to be centered within the individual for the conversation skill of termination.

The subjects' termination efforts from the Lesson and Snack contexts combined are presented in Table 24. In this table the results represent the actual number of terminations rather than the percentage given the small numbers terminations found.

Table 24.

Number, Nature, and Result of Subjects' Termination Skills

Subject	Number of Terminations	Nature Appropriate	 Inappropriate	Result Successful	 Unsuccessful
S1	15	12	3	7	8
S2	8	8	0	3	5
S3	33	29	4	19	14
S4	13	13	0	8	5
S5	16	15	1	12	4
S6	14	11	3	11	3
S7	25	22	3	19	6
S8	12	12	0	12	0
Total	136	122	14	91	45
Percent		90	10	67	33

Breakdown/Repair Sequences

To study the area of breakdown/repair a decision was made to focus on only the "classic" breakdown/repair sequences. Thus, the subjects' transcripts were studied for instances where either they, or the communicative partner, indicated that the preceding message was inadequate by saying, What? Pardon? Excuse me? I didn't hear you? etc. The decision to use the classic definition of a breakdown/repair sequence centered on the fact that each subject was apparently involved in many more breakdown/repair sequences but it is very difficult to identify where these sequences begin and end.

In general there were two types of breakdown sequences considered in this section: (a) those sequences where the cause of the breakdown was the subject as speaker; and (b) those where the breakdown occurred with the subject as listener. All eight subjects were found to be involved in both types of breakdown sequences. For sequences with the subject as speaker (a) Articulation/Intelligibility, (b) Completeness of Information, and (c) Volume/Visual Adequacy were the most frequent factors contributing to the breakdown for the Oral subjects, while Completeness of Information in the Sign Assist subjects appeared to cause the most breakdowns. For those sequences with subject as listener (a) Absence of Mutual Desire, (b) Attention, and (c) Comprehension, were found to be the most frequent causes of the Oral subjects' breakdowns, while (a) Absence of Mutual Desire, and (b) Attention, were the most frequent causes for the Sign Assist subjects.

In considering for further analysis only those breakdown sequences where the subject was the speaker, 88% of the time or in 43 of the 49 cases, the communicative partner was the one to initiate the repair sequence and in the remaining 6 cases, the subject self-initiated the repair sequence. As for the study of the repair attempt, 41 of the 49 cases or 84% of the time, the subject attempted a repair when one was requested. Table 25 summarizes the information on type of breakdown, repair initiator, and the presence of a repair attempt for each subject. Owing to the relatively small number of breakdown/repair sequences the Lesson and Snack contexts have been combined, and the results represent the actual number of sequences that were identified in the language samples.

Table 25.

Number of Breakdowns, the Repair Initiator, Presence of Repair Attempt, and Repair Outcome for Each Subject

Subject	Breakdown Subject as Listener	Breakdown Subject as Speaker	Repair Initiator Other	Repair Initiator Self	Repair Attempt	Positive Repair Outcome
S1	2	6	6	0	4	2
S2	1	6	5	1	5	5
S3	3	15	15	0	14	8
S4	1	3	3	0	3	2
S5	3	6	3	3	5	2
S6	9	3	2	1	3	2
S7	10	9	8	1	6	1
S8	1	1	1	0	1	0
Total	30	49	43	6	41	22

The subjects were found to attempt a variety of repair strategies, often in combination, when a sequence was initiated. However, the strategies most often selected were (a) repetition, (b) phonologic reformulation , and (c) elaboration.

As a result of these strategies, the subjects were able to successfully repair, 22 of the 41, or 54 % of the identified communication breakdowns. With regards to the type of strategy that the subjects used to repair the conversation, Figure 18, a stem and leaf display, illustrates the frequency of the repair strategies that each subject used.

Repair Strategy			
Type	Subtype	Frequency of strategy used for subjects--S1 to S8.	Total
Linguistic Structure	Phonologic	1133333344	10
	Morphologic		-
	Lexical	37	2
	Syntactic	3	1
Linguistic Content	Repetition	111122222333333334445556667	27
	Confirmation	1	1
	Specification	337	3
	Elaboration	33344578	8
Extra Linguistic	Pitch		-
	Stress	55	2
	Volume	11445	5
	Demonstration	335677	6

Figure 18. Stem and leaf display, illustrating subjects' use of repair strategies.

Summary of Results--Social Organization of Discourse

Social/Nonsocial Speech

1. Between 83 and 90% of the communicative behavior was rated as social.
2. The Snack context promoted a higher percentage of social communicative behavior for most subjects.
3. Differences in the percentage of social versus nonsocial communicative behavior was not evident on the basis of age, method of communication, or educational environment.

Turntaking/Talking Time

1. The subjects' average production of CIs per minute was similar in both contexts.
2. A modest developmental trend to increased CIs per minute was suggested.
3. A relationship between CIs per minute and communication method was not demonstrated, however the subjects' production in different contexts appears to be related to the educational environment/lesson/activities format.

Conversational Skills

1. Seven of eight subjects showed a basic ability to use the four conversational skills.
2. The most frequent application of the CIs involved maintenance followed by initiation and then termination. The conversation skill of shift was generally the least frequent application of the CIs.

3. The Oral subjects favored an auditory initiation strategy, while the Sign Assist subjects favored a combination strategy. Eighty five percent of all initiations were considered appropriate with a 51% success rate overall.
4. All subjects demonstrated a variety of maintenance forms, which were described as appropriate 93% of the time, with a success rate of 87%.
5. The skill of shift in a conversation appears to be a recently developed or emerging skill described as appropriate 83% of the time with a success rate of 64 percent.
6. The subjects demonstrated a basic competency at termination with 91% appropriate ratings and a 67% success rate.

Breakdown/Repair

1. Subject's breakdown/repair sequences occurred in both speaker and listener roles.
2. Primary factors contributing to breakdowns with subject as speaker involved intelligibility, incompleteness of information, and lack of volume. Major factors for breakdowns as listener involve lack of desire, attention, and comprehension.
3. Primary repair strategies involved repetition, phonologic change, and elaboration.
4. In 88% of the repair sequences, the sequence was initiated by others, but 84% of the time an attempt was made, if requested, with an approximate 50 percent success rate.

V. DISCUSSION AND SUMMARY

A. Introduction

Santrock (1988) indicates that the role of pragmatics pertains to the social context of language and to how people use language in conversation. This study has attempted to contribute to the knowledge of conversation as it pertains to young hearing impaired children.

The first three chapters of this thesis have discussed the rationale behind the study, a framework for organizing and studying the pragmatic language areas, the background research, and the methods which were used in the present study. The fourth chapter described the data which were acquired through videotaped language samples on the eight subjects. Although the conclusions must be tentative and the application of the results to other hearing impaired children is limited, the descriptive data provide a rich source of information on the pragmatic language competencies of the subjects who participated in the study. As an addition to the findings outlined in the review of the literature, this present study has either confirmed or elaborated upon these areas and added a significant number of findings to identified pragmatic areas which were in need of attention.

This chapter will focus on relationship of these findings and the implications of this study. The subheadings will consider (a) the instruments and the areas of pragmatic language competencies addressed, and (b) how the findings relate to the developmental literature outlining the competencies of hearing children. The concluding sections of this chapter will (a) consider implications the results may have for pedagogical practice with preschool hearing impaired children, (b) identify areas for further descriptive or experimental research, or directions the present study could be extended, and (c) a final summary.

B. Discussion of the Results

The Protocols

The study of the pragmatic language competencies of the hearing impaired child in the classroom has only recently been a topic of intensive investigation (Wood, Wood, Griffiths, & Howarth, 1986). Much of the information on these competencies has been adapted from studies of mother/child dialogues. As Owens (1988) indicates, much of the hearing preschool child's conversation still occurs within the mother-child dialogue, and the linguistic environment of the home is a significant factor.

In contrast to a hearing preschool child, the hearing impaired child frequently attends an educational environment, which involves a teacher/student dialogue, from a very early age. Furthermore, the linguistic environment of the educational setting may or may not be the linguistic environment of the home. Major portions of language development for the hearing and hearing impaired child may remain parallel, since in either case, the teacher, like the mother, is very much in control. This type of conversational asymmetry in favor of the adult continues for some time but differences occur because of differences in structure and context.

The use of the GAP in this study acted, in some respects, as a bridge between the dialogue of mother/child and teacher/student discourse. Cole and St. Clair-Stokes (1984a/b) developed the protocol by identifying ten aspects of mother/child communication which support the use of the auditory/verbal channel. In this present study the same aspects, with minor editorial changes, were considered for the teacher/student communication. The results clearly indicated that the teachers adhere to these aspects. In fact, the aspects could be considered requirements of good teaching practice with hearing impaired children. The large number of positive reports suggest that the teachers in this study are consciously aware of those important factors which promote the use of the auditory/oral channel for communication.

The GAP, besides acting as a general consistency measure of the teacher/subject dialogue in the educational environment, also clearly addressed the first research question. Are there differences in the teacher/subject communication within the different classroom environments which may account for variation in pragmatic language competencies of hearing impaired preschool children?

Clearly, the aspect of the GAP which considered the differences in the degree of structure in the lesson/teaching format identified an area where differences in the children's pragmatic language competencies may be found. For example, the students in the more structured lesson activities and teaching situations participated in the highest number of turns, had the largest numbers of clear/informative intentions, had a large percentage of social CIs, but also demonstrated a large number of imitative turns and a slightly more restricted range of conversational skills. In contrast the subjects in the less structured Language Lesson had fewer turns, did not have as many clear CIs, but showed a greater percentage of novel CIs, and a greater variety of conversation skills with initiations and terminations.

Thus, it appears that the effects of the activities of the educational environment and instructional format must become two more factors that the teacher must take into account when designing instructional programs. If the educational goal involves practicing a recently acquired linguistic skill--the structured instructional activities may afford this practice. If however the goal is to expand the child's conversational skills--a less structured activity involving conversation or discussion may be a better approach.

The degree of structure within the teaching approaches likely reflected a number of factors including the personalities of the children and teachers, the age and level of ability of the children, and the teaching/language objectives in place. Thus, the instructional format and the activities used by the teacher of young children may not entirely reflect the teachers individual style. The activities and format may reflect approaches which are effective for enculturating very young children to the educational environment, or preparing older children who will be making a transition to a more formal public education system.

Pragmatic Protocol (PP)

The protocol in this study was used to address the second research question--are there comprehensive or pattern differences in the pragmatic language competencies of the hearing impaired preschool children with regard to age, method of communication, and educational environment?

From the outset, the protocol was found to have value even though the subjects were younger than the recommended age. The protocol provided an estimate of the subjects' communicative index relative to one another, if not to other populations, and highlighted a number of areas which may represent common areas of deficit for hearing impaired preschool children.

As a general communicative index the PP has value as a descriptive taxonomy with young hearing impaired children. Once specific parameters were identified as deficient, clinical clusters emerged and these were useful in directing the investigation in specific pragmatic language areas. The identification of intact abilities was also important. It is from this basis of knowing that the protocol should have a clinical application to the design of treatment strategies.

In this study the protocol indicated that the nonverbal aspects did not present difficulty for any of the subjects regardless of age or method of communication, while the strongest skills in the paralinguistic areas were demonstrated by the two oldest Oral subjects. It was within the verbal areas involving speech acts, presupposition, and social organization of discourse that the PP may have the most application. Clearly, the protocol demonstrated individuals' strengths and weaknesses in a efficient manner, but the protocol was also successful in identifying a dozen individual aspects which accounted for over 80 percent of the inappropriate ratings for the subjects as a group. In fact, six of these parameters, cohesion, topic change, revision/repair, vocal quality, intelligibility, and topic selection accounted for 46% of the inappropriate ratings. These findings suggest important educational implications for instruction and planning.

Recognizing that the PP has fulfilled the initial purposes of the study by providing an over all communicative index and highlighting a number of pattern differences which were useful at directing more specific investigation. It is also interesting to note that the protocol provided some of the first information to several of the research questions which form the basis of the study involving the checklists.

To Question 3 which considered the range of CIs, the protocol, as evidenced by the scoring of the "Speech act pair analysis" and "Variety of speech acts" parameters, indicated that the subjects do differ. The results suggested that the younger subjects have a more restricted Range and/or they have a greater difficulty selecting the correct CI for the context and dialogue.

To the fifth Research Question addressing the skills in presupposition. It would appear that the protocol's presuppositional parameters of "Cohesion" and "Varying the communicative style" show a consistency for the group of hearing impaired children. All of the subjects were marked inappropriate for "Cohesion" and appropriate for "Varying the communicative style". This leads to the speculation that for hearing impaired children the skill of "varying the communicative style" mirrors the normal developmental sequence regardless of such factors as method of communication. And conversely, with cohesion it may be that either this presuppositional competency is a later developing skill, or a hearing impairment, regardless of other factors, has a negative effect on its acquisition.

The sixth Research Question which addresses the pragmatic language competencies in the area of social organization of discourse, the protocol consistently found that the subjects were rated as inadequate in the parameters of topic selection, topic change, and repair/revision. In fact these areas were consistently marked inappropriate, regardless of age, method of communication, or educational environment, a finding which may reflect a difficulty related to normal acquisition or use of these skills within the context considered.

Communicative Intentions--Range (CI Range)

The third research question was interested in the range of CIs that the hearing impaired children might exhibit with regard to age, method of communication, and educational environment. Since the subjects as a group were found to produce all of the CIs considered in Days' system, it would appear that the hypothesis that hearing impairment alone does not limit the acquisition of the complete range of CIs has been supported. Simply, the findings in this study are in agreement with Skarakis and Prutting (1977), Curtiss et al. (1979), and Day (1986). This study, like the earlier studies, found hearing impaired children capable of producing a wide range and a substantial number of CIs within different contexts.

Individually, the subjects demonstrated the six basic categories of CIs, but at the subcategory level the children's individual profiles demonstrated substantial differences in both variety and quantity. In this study, these differences could not be attributed to specific factors such as age, communication method, or educational environment in all cases. Not surprisingly, the subject with the fewest number of CIs also had the most restricted range, while the subject with the largest number of CIs demonstrated the greatest range. To this point, competency in the range of CIs appears to have a chronological relationship, but individual differences do exist.

The fourth research question, the second to focus on the range of CIs, was interested in the developmental sequences or patterns of CI Range usage in the hearing impaired subjects, again with consideration to the effects of age, communication, and environment. When the subjects use of the six major categories of CIs were investigated, the frequency of category use was found to have a high degree of similarity as demonstrated by a significant Kendall's Coefficient of Concordance.

This degree of similarity has been taken to support the position that members of a group produce a certain type of response, but alternatively the similar rank order may also be taken to support the position that a certain type of context produces a certain type of response. In order to clarify this situation it will be necessary to look at the CI rank order of other subject groups in contexts similar to ~~those of this~~ study.

Within the clinical setting, Prutting, Bagshaw, Goldstein, Justowitz, and Umen (1978) found that the most prominent pattern of interaction was for clinicians to request and for the children to respond to the request. This CI Range pattern also received support in this study, especially for interactions in the Lesson context. However in the Snack context, there was an increase in the subject's requesting and a decrease in the number of response CIs. Thus, this finding may be taken as support for the use of a variety of contexts within the communicative and educational environment, especially if the educational goals involve developing a greater range of CIs. Furthermore, within different contexts, it is likely that certain CIs will develop naturally, while other contexts will be necessary in order to support a different group of CIs. For example, the Snack context was found to support the use and development of the Politeness CI, where as this same CI was not found in the language samples of the children in the Lesson context.

Communicative Intentions--Form (CI Form)

As with the study of CI Range, CI Form was considered in the fourth research question which was interested in the children's pattern of usage or developmental sequences. The results from the study of form followed a pattern which might have been predicted from experience with hearing impaired children, especially in the

Lesson context. Verbalization was found to be the most frequent form for the older Oral subjects and those with apparently stronger CI Range skills, whereas the Sign Assist subjects favored some combination of gesture/sign and vocalization/verbalization.

Interestingly, the subjects were found to shift their form of expression with a change in context--perhaps to a degree greater that might be expected. In this case, the change to the Sna~~ck conte~~xt found the Oral subjects increased the number of CIs expressed by combination while decreasing the number of verbal forms. In a similar fashion, the Sign Assist group produced an increased number of gesture/sign forms at the expense of combined forms in the Snack context. It has been long noted that hearing impaired children have used different forms of communication in the classroom and residence or school yard. But in the present case, this shift in forms often only involved minor context changes within the same classroom. Thus, the children's shifting of forms should not be judged negatively, rather the shifting represents a continuum of form styles.

Developmentally, maturation and instruction may be responsible for the Oral subjects' increased use of verbalization as a form for expressing their CIs. This finding was evident in the CI Form checklist where a difference in the percentage of verbal forms was noted in the oldest and youngest Oral subjects. This finding also received support from the Pragmatic Protocol where the oldest Oral subjects were found to have fewer problems with the Paralinguistic parameters.

It was not possible to consider the direction that form usage may take in the Sign Assist subjects. Informal anecdotal reports of hearing impaired children using a combined communication system have suggested that the number of combined forms decrease with age, while the number of gesture/sign forms increase. Although this may reflect the overall trend, this present research would suggest that the pattern of form usage is heavily influenced by the context, so additional factors such as subject motivation, parental influences, and education methods would also be important considerations.

Presupposition Skills

The investigation of the presuppositional skills of hearing impaired preschool children involved a considerable number of areas. However, the focus of all these investigations returns to the central theme of the fifth research question. which was interested in whether the hearing impaired child demonstrates different pragmatic language competencies in the area of presupposition when age, communication, and environment are considered. In addition to the focus of the hearing impaired child's competencies relative to other hearing impaired children, it is natural to have an interest in how these competencies relate to hearing children, because of the educational implications.

Informativeness

Bretherton and Beeghly (1982) and Shatz, Wellman, and Silber (1983) have found that the average hearing child of three years usually mentions the most informative item first and is generally able to determine the amount of information the listener needs. During the preschool years and extending well into the school age years, the child becomes increasingly more adept at knowing what information to include, how to arrange it, and which particular lexical items and linguistic forms to use (Dehart & Maratsos, 1984; Owens, 1988).

This developmental progression with hearing impaired children was supported in this study. All of the subjects showed a developed skill at Message Information, with the older subjects demonstrating a better facility. There was little evidence to suggest differences on the basis of communication method, although the educational environments, especially those of a more structured lesson format, may cause the number of "novel" messages to decrease, while increasing in the number of "redundant" intentions.

Mackay-Soroka et al. (1987) found bimodally educated children were better than orally educated children at message-sending skills, which the authors attributed to differential message formulation skills. In this study, the subjects' CIs on average, were found to be informative and clear over 70% of the time with the Sign Assist subjects again performing slightly better that their Oral age mates. However, besides method of communication, better results were also found in the Snack context and those educational environments with structured educational activities. Thus, it may well be that the a high percentage of informative and clear messages are a result of these variables, rather than the method of communication, however a controlled study would be needed to clarify this issue.

On the topic of deictics, i.e., words that shift reference with each change in the speaker, Owens (1988) noted that by two years of age, the hearing child uses pronouns. However, the child, in using of these pronouns, frequently does not identify the entity to which they refer. By three years of age, the hearing child is able to correctly use deictic terms, such as 'here/there' or 'this/that'. In any case the development of these concepts is gradual due to their shifting reference/boundaries.

Considering this outline of deictic developmental milestones, their restricted use in this group of hearing impaired children suggests a significant developmental delay, in some cases, of two or more years. Regardless of the time involved in the delay, it would not appear that the subjects' use of deictics is deviant given the fact that the children appear to be acquiring the deictic forms in the usual sequence, first pronouns, then adverbs of place and time. The normal sequence of acquisition of these skills is also supported by the fact that the children are able to imitate the correct usage of the deictic forms prior to their spontaneous use.

The hearing impaired subjects use of articles was also found to be very restricted. Again, this restricted usage suggests a delay in comparison to hearing children of approximately two years in some cases. As Santrock (1988) noted, three year old children follow part of the rule of using "a" or "an" to refer to an item initially, and then by "the" for later reference, to enhance understanding. And, by four or five years of age the child shows a remarkable sensitivity to article use with only a few occasions where the usual convention is not followed. It was difficult to ascertain the competencies of the hearing impaired children in this study, given the limited number of occasions that articles were spontaneously used. What was evident was that increased production of article usage favored the Lesson context where more formal and structured language is frequently requested.

For Cohesive structures the subjects' use was again minimal, but there was some evidence to suggest the developmental sequence starts with Ellipsis and is followed by Reference, Substitution, and Conjunction, in a yet, undetermined order.

Communicative Partner: Sensitivity to Audience Variables

The ability of hearing children to adapt their speech style to the listener has been well documented. The child of approximately three years demonstrates a form of motherese and by five, the child is able to cloak his intentions more skillfully (Shatz & Gelman, 1973, as cited in Owens, 1988). However, the children in this age range do show some deficiencies in communicating with very young children. Santrock (1988) reported hearing four year old children to use fewer conversational devices when talking with infants than adults, and to be less adept at providing an infant with nonverbal/cues (gestures) which enhances the meaning of what they are saying. Also, a four year old frequently ignores the infant's most recent utterance, or at least fail to continue conversing about the topic of this utterance. Although five year old children can comprehend and produce basic requests, they are unlikely to generate politely worded requests, for someone to help them with some difficulty they face, at this time.

Of the two linguistic groups in this study, the Sign Assist subjects presented the highest percentage of Sensitive CIs and the lowest percentage of NA/Neutral CIs. In this regard there may be a complex relationship between a variety of variables including subject, method of communication, teacher, and instructional activities and method. For the Oral group the effects of structured activities within the classroom seemed to be very important. In this case, the youngest and oldest Oral subjects showed the higher number of Sensitive CIs when compared to the middle group. In both cases the youngest and oldest groups were involved in more structured activities, and the middle group was participating in a more open-ended conversation. Interestingly, this middle group of Oral subjects, along with the youngest Oral subjects had fewer incidences of CIs being rated as Insensitive than either the older Oral or Sign Assist subjects.

In this area, the study supports the subjects' having similar competencies to hearing children. As a group 92% of the subjects' CIs were found to be sensitive to the audience and supportive of the ongoing discourse. The individuals showed varying degrees of sensitivity to the audience, with linguistic experience possibly decreasing sensitivity along with increased age and Sign Assist method of communication. This possibility is quite puzzling in both instances, but it may be that the older Oral subjects' insensitivities are simply more evident when they have acquired better expressive skills. In the case of the Sign Assist subjects, the insensitivities identified may not reflect an inherent lack of sensitivity to the audience, but may be related to an interaction of a visual communication system in a context with an strong auditory component.

There were some basic commonalities in the types of insensitivity that the subjects demonstrated regardless of age, communication, and environment (a) inappropriate lack of response, (b) problems of discourse regulation relating to topic, (c) inappropriate degree of politeness, and (d) inappropriate repetition. In total, Politeness, No Response, and Topic Problems were responsible for the largest percentages of insensitivity to audience variables. In each of these cases it may well be that the insensitivity has a different basic cause. Politeness may reflect differences in the socialization process or communication modality incompatibility, while No Response could be directly related to the hearing deficit, and Topic Problems may reflect underdeveloped linguistic skills secondary to the hearing impairment.

Social Context

There is an absence of published information on the hearing child's sensitivity to the adequacy of the communication channel and changes in context. Quite simply there may be little reason to study the topic. However, with the hearing impaired child, this topic can be very important. In this study, the number of CIs demonstrating Sensitivity or Insensitivity to the inadequacy of the communication channel was small, but favored more sensitivity than insensitivity, with the younger subjects being less likely to protest the inadequacy of the channel of communication. In contrast to the weaker skills at monitoring of the inadequacy of the communication channel, the subjects' ability to monitor changes in context would appear to be somewhat stronger, but the degree to which this skill is developed was not studied or evident, given the constraints of the present study.

Social Organization of Discourse Skills

The investigation of the social organization of discourse skills of the hearing impaired preschool children, like the investigation of presupposition, involved a considerable number of areas. In this case, the focus of these investigations addressed the sixth research question which was interested in whether the hearing impaired child demonstrated different pragmatic language competencies in the area when age, communication, and environment were considered. Again, the interest in these competencies extends beyond the subjects and other hearing impaired children, to include an interest in how these competencies relate to the skills of hearing children.

Socialized/Nonsocialized Speech

Within a communication situation, children engage in a variety of communicative behaviors, only a portion of which can be considered conversational. Currently, information on the typical proportion of "social/nonsocial" communicative behavior preschool children exhibit is limited but this information may be of considerable clinical importance in the assessment situation. As Day (1986) suggests, the analysis of the hearing impaired child's functional use of communication may provide a potential source of data for making a decision on whether there are additional problems due to undiagnosed organic or emotional factors.

In this study, it would appear that hearing impaired preschool children, as a group, demonstrate communicative behavior in the social category between 80 and 90% of the time when involved in educational contexts such as Lesson and Snack. Differences in the amount of communication were not evident on the basis of age or method of communication, rather it appears that contexts like Snack naturally promote, by nature, a higher percentage of social communicative behavior.

Turntaking/Talking Time

The information collected on this pragmatic language skill did not clarify differences on the basis of age, or linguistic/educational environment. A developmental progression with the number of CIs per minute increasing with age is likely, but it is obvious that there are considerable individual differences relating to hearing loss, linguistic skills, environment, mode of communication, context, and in the case of instructional processes, on the basis of teaching/learning activities. It might be said that hearing impairment need not limit the amount or quantity of communication between the subjects' and their teacher. Furthermore, this information should be conveyed to other adults who may interact with a hearing impaired child, either through the specialized classroom teacher or the informed parents and advocates of hearing impaired children.

The subjects demonstrated turntaking of 1.7 to 6.1 CIs per minute with an average production of 4.5 CIs per minute, in both contexts. The obtained rate for turntaking in this study was similar to Day's (1986) reported rate for children at home with parents, to that of Meadow et al. (1981) in a clinical therapy room with one subject and a speech clinician, Wedell's (1975) study with signing deaf children, and that of Curtiss et al. (1979) with oral deaf children interacting with peers.

It is acknowledged that the presence or absence of turntaking should be documented. Quite simply, this measure identifies an individual's base level of competency within the communicative environment. With hearing impaired children the incompetent subject generally participates in the discourse to a substantially lesser amount than do other subjects. For example, in this study, S4's turntaking rate indicated that the degree of participation was substantially below the other children of similar ages. Given these findings it is obvious that investigations must identify whether the basis of the subjects' low production is related to not knowing or using the turn allocation techniques of (a) asking questions, (b) manipulating intonational contour, (c) adding facial cues, and/or (d) pausing.

Owens (1988) summarized the hearing child's developmental progression of turntaking by noting that the two year old is able to respond and to engage in short dialogues of a few turns on a given topic, and by three years, the dialogue can be extended beyond a few turns. By five years of age 80% of the children can sustain certain topics through about a dozen turns.

The questions raised concerns about the appropriate amount of teacher/child interaction necessary to accomplish specific goals during a particular phase of remediation/development. Prutting et al. (1978) found that clinicians were occupying more of the communicative space than the children with a ratio of 2:1 for communicative acts. In this study, the contexts involving 5 participants (4 children, 1 teacher); the ratio of adult communication to child communication was found to be 5.9:1 on average, while in a setting of three participants (2 children, 1 teacher) the ratio was 2.6:1.

The percentage of turns as it relates to holding the conversational floor is also important. The results in this study show that the smaller the number of participants the higher the percentage of turns. Now, while this finding may be used to support a low teacher/pupil ratio, it must be remembered that language practice may be reduced to artificiality if the ratio is too small and the honesty of conversation is lost.

An informal finding arising from the study of the children's turntaking skills related to turns consisting of several CIs. Not only were the younger children less likely to have fewer communicative turns, but they also had very few turns consisting of more than one CI. The more competent subjects were more likely to have more turns and turns consisting of more than one CI. When the teachers were considered on this point, not only did they have more turns than the children, but they were likely to have more turns consisting of multiple CIs. This aspect would be an interesting direction to take this research.

Conversational Skills

In this study, seven of the eight subjects showed a basic ability to use the four conversational skills. As in several other instances, the skills of S4 were substantially behind those of either the similar-aged or younger children in this study. Nevertheless, with all of the subjects the most frequent conversational skill involved "maintenance" followed by "initiation", "termination", and "shift". Generally, this concurred with Prutting et al. (1978) who found that the children were primarily engaged in continuous discourse, that is, sustaining a prior discourse topic. Only infrequently did Prutting et al. find the children to initiate new topics. The subjects in this study did have a significant number of initiations which may reflect the fact that the subjects were older. Furthermore, the contexts contained more participants which may afford the opportunity to start more conversations.

Speaking specifically to the topic of initiation, Owens (1988) noted that by two years the child can introduce a new topic. In this present study the Snack context was found to be more conducive for five of the eight subjects to produce initiations, while the context for the other three had little effect on the production of initiating CIs. In regard to how the subject presented the initiation, the strategy employed seemed to be related to mode of communication. The younger oral subjects used a variety of strategies with a tendency toward more auditory forms, whereas the Sign Assist subjects were most likely to use a combined or visual strategy. Regardless of the strategy used to present the initiation, 85% of all initiations were considered appropriate to the context and listener, but the success rate for all initiations was limited to 51 percent.

Owens (1988) reported that as the hearing three year old becomes more aware of the social aspects of discourse, the child acknowledges the partner's turns with fillers, such as 'yeah' and 'uh huh'. On a similar focus, Bloom, Rocissano, and Hood (1976) established that between three and four years of age about 75% of the children's utterances are on the established topic. Repetition is one tactic used by preschoolers to remain on topic but Owens suggests that hearing five year old children continue to use frequent repetition to acknowledge, provide cohesion, and to fill turns. The subjects in this study demonstrated a variety of maintenance forms, which were described as appropriate 93% of the time and had a success rate of 87 percent. Thus, it appears that the skill of maintenance in the hearing impaired child mirrors that of the hearing child.

Owens (1988) noted that by two years of age the hearing child can change the topic of discussion. For the subjects in this study, the skills of shifting a conversation could at best be called "recently developed" or "emerging", given the overall success rate of only 64 percent. The subjects demonstrated a similar basic or emerging competency at termination with 91% appropriate ratings, and an overall success rate of 67 percent on the limited number of examples identified.

Breakdown/Repair

The area of conversational breakdown/repair is traditionally noted to be an area of concern with the hearing impaired. Interestingly, Bearison and Levey (1977) found the hearing preschooler is not always successful in getting his message across because of difficulty detecting ambiguity. Pratt, Scribner, and Cole (1977) as cited in Owens (1988) found that the hearing preschooler is unable to reformulate his message in response to a facial expression of noncomprehension and must be directly requested to clarify. The most common clarification strategy among preschoolers is a simple repetition, especially if the request is nonspecific, such as "what?" or "huh?". The ability to clarify and to organize information more systematically in a repair sequence does not develop until mid-elementary school. "It is not until middle elementary grades that a child develops the skill to make specific requests for clarification" (Ironsmith & Whitehurst, 1978 as cited in Owens 1988, p. 291).

The present study has added information to the skills hearing impaired preschool children demonstrate with breakdown and repair sequences. First, the subjects were found to be involved in communication breakdown/repair sequences in both the speaker and listener roles with the greater number occurring when they were in the speaker role. Furthermore, it is those sequences where the hearing impaired child is the speaker which are likely to be pursued when the child is in the educational environment. These breakdowns are featured because the teacher will start the repair sequence by indicating a lack of comprehension and formally make a request of the child for a repair.

The most frequent factors contributing to breakdowns with the subject as speaker involve intelligibility, incomplete information, and lack of volume. The major factors for breakdowns as listener involve lack of desire, attention, and comprehension.

In those sequences with subject as speaker, 88% of the repair sequences were initiated by the listener, and only 22% were self repairs. Of the sequences where a repair was requested by the listener, the subject attempted a repair 84% of the time, but overall if an attempt was made the success rate was still 50 percent. Like the hearing children described earlier, the hearing impaired subjects' most frequent repair strategy involved repetition, with attempts at phonologic correction and linguistic elaboration being the second and third most frequent strategies.

In the study considering conversational repairs in hearing impaired children, MacKay-Soroka et al. (1987) found bimodally educated subjects better at providing a more differentiated message when a repair was requested. At a syntactic level this would appear to be a reasonable conclusion since the bimodal children were more likely to vary their "repair" message, in comparison to the Oral subjects who would use repetition as their repair strategy. The present study suggests that the Oral children's repairs also show considerable differentiation but the differences may occur at the paralinguistic and nonverbal levels with changes of inflection, intonation, facial expression, and eye gaze. This concurred with the findings of Beattie (1987) where hearing impaired children in integrated Oral educational settings were found to contribute information to the conversational repair in the paralinguistic areas.

C. Implications for Pedagogical Practice

The results of this study have indicated that the hearing impaired preschool child's competencies may be described as either being delayed or "parallel" to hearing children of similar ages. What is evident is that the profile of skills as identified for a single child, or features common to hearing impaired children as a group, can suggest guidelines for the content and sequencing of language remediation programs. Schirmer (1985) suggested that the finding of delayed rather that deviant language abilities implies that the language curricula should parallel normal language acquisition in at-least three important ways. These three suggestions are again supported by the findings in this study along with two more additional implications which may be considered.

1. The language curricula should incorporate all components of language. In general, the importance of the immediate environment, as a language focus, remains in the preschool program for hearing impaired children. A certain amount of discourse can focus on an abstract topic, but the teacher must closely monitor the children's comprehension, or conversely the children will need to learn the skills of self monitoring when complex or abstract conversations may increase the number of misunderstandings.

2. Hearing impaired children should be immersed in a language rich environment. This general position continues to form the basis of early intervention programs. In the case of hearing impaired children, teachers need to be cognizant of the role their language plays in this environment. A primary consideration in providing a language rich environment involves turntaking and discourse. Educators must be aware that assuming a larger portion of control within a conversation likely decreases the richness of the environment for the other participants. Presently the optimal ratio for teacher/pupil talk is unknown, but it is likely that the portion of teacher speech is frequently too high.

3. Children should be given the freedom to use nonadult and acceptable incomplete cohesive language forms. There is some degree of artificiality in the instructional environment when natural conversation is considered, but efforts must be made to allow the discourse to be as honest and natural as possible. In general, the educational environment, teaching formats, and evaluation procedures focus too often

on " the complete forms of language". To this point, the teacher must be aware that the "one word" elliptical response may be the natural and correct form of language in a given context, especially if the previous turn involved a Yes/No question or Agree/Disagree statment.

4. Educational planning must consider the interrelationship between educational methodology, educational/linguistic goals, and context. The pedagogical issues involve recognizing that planning for a child's linguistic target includes decisions on (a) how to achieve the target, (b) what manner may be the most effective, and (c) what context would be most conducive to acquiring that skill. Prutting et al. (1978) found that the most prominent pattern of interaction was for clinicians to request and for children to respond to the request. It is of interest to know whether this occurs because it is a procedure useful in remediating syntactic structures, or if this is a characteristic of adult-child discourse. Regardless, what is evident is that certain educational contexts and procedures may not support the acquisition or development of certain pragmatic competencies. For example, the Snack context, appears to naturally support the reinforcement of politeness marker CIs, while the structured situation may encourage a child to produce a large number of clear and informative utterances.

5. The effects of the teacher's shifting attention and language level between the children and other adults within the context needs to be considered for the possible confusion children may encounter. Frequently, educational programs for hearing impaired children include, as an integral feature, concurrent parent guidance or adult education. Presently little is known of how children cope with shifts in level, but there is some basis for concern about the child's ability to cope with situation.

D. Suggestions for Future Research

The design of a good research study on pragmatic language competencies in hearing impaired children is complex. One problem involves the vast number of issues which need to be addressed, while another involves dealing with the reality of balancing efficiency of evaluation or measurement against time and cost effectiveness. In the future, one of the primary tasks for researchers interested in the development and assessment of pragmatic language skills should be deciding which variables can be meaningfully studied and by what methods.

Notwithstanding the problems of conducting this type of language research, the importance of continued study in the area of pragmatics is underscored by findings from a study by Mueller (1983) as reported by Prutting and Kirchner (1987). When profiles of pragmatic, semantic, phonologic, and syntactic abilities were correlated with overall societal likeability ratings the results were +.80, +.40, +.20, and .00 respectively. Thus, these results suggest that pragmatic competencies may play the greatest role in societal competence and remediation of the pragmatic aspects of communication may contribute most to a level of social acceptability.

The following are suggestions for future studies based on this present study:

1. In order to give an additional dimension to the subjects' CIs, it would be helpful to look at the relationship between the teacher's and child's productions. Although a research design similar to the present study could be used it would probably be more effective to use a smaller number of participants and collect longer communicative samples. Thus, to minimize individual differences it may be best to limit the study to one teacher and one child, or possibly one teacher and the children who make up the small class or group.

2. Day (1986) reported that hearing impaired children's skills in using language to acquire information or for heuristic purposes, deviate from those reported for hearing children. This study, in part, supported these conclusions, but did not clearly identify reasons for these findings. An interesting study could be developed in which the hearing impaired child's language skills could be investigated in a number of divergent contexts where hearing children are known to frequently use these language functions.

3. As Klecan-Aker and Lopez (1984) suggest, future research should include analysis of data on the differences between males and females. References to the superiority of females with respect to almost all aspects of language development abound in the literature. The present study did not examine the data relative to sex differences since the distribution of males and females was not equal or large enough to make an accurate evaluation.

4. Future research should address the performance of well defined groups to clarify patterns or clusters of dimensions on which the subjects perform well or poorly. In particular this research could focus on research question such as... Why do hearing impaired preschool children have such limited success with initiating a new topic of discussion when they apparently have the skills to introduce the topic in an acceptable form at an appropriate time? or... What relationships may exist between the form a child chooses to express their CIs, the presuppositional skills of Message Information, and the social organization skills of Breakdown and Repair? or... What is the relationship between the a child's attempts to terminate a conversation and the Response CI to Yes/No questions or Agree/Disagree statements? This kind of specific research would allow us to better understand the nature and impact of a pragmatic

deficit in the hearing impaired population. Furthermore, the information from this type of study would be useful for planning curriculum, rather than individual programs.

5. To clarify the differences in acquisition of CIs it will be useful to conduct a longitudinal study to follow the development of groups of hearing impaired children to determine (a) the sequence of acquiring CIs, and (b) whether early differences in patterns of language use are predictive of differences in later language and academic functioning. This type of study could be focused on the development from several different contexts--home, school, and other social environments, or limited to one specific setting.

6. As Prutting et al. (1978) indicated, there has been little attention to the amount of verbal communicative interaction during particular points in the remedial process. Thus the topic warrants exploration to specify general guidelines for instructional approaches at particular intervals in the remedial process.

7. The reasons why hearing impaired children are communicatively suppressed remain open to question. It will be necessary to do comparative, indepth, linguistic studies to investigate deaf children learning sign as a first language, deaf children learning spoken English as a first language, and deaf children learning two languages in a Total Communication environment, to differentiate the effects of auditory deprivation from specific educational remedial procedures employed.

8. An interesting study, perhaps of a qualitative nature, could be designed to look at the effects of "cultural clash" where hearing impaired or deaf children of deaf parents are participating in an educational environment using a different linguistic system. Hoemann (1972) suggested that the ability to pick up cues about how a

message is to be understood constitutes part of what is included in sociolinguistic competence in a language. Such ability is not conferred automatically, it must be learned. This means that one must be a member of a particular culture or society to know how to distinguish and interpret these cues.

9. Perhaps one of the most important areas to consider in future studies of pragmatic language competencies with hearing impaired children is the degree of hearing impairment itself. To this point in time, studies have generally focused on children with severe or profound hearing losses, but the number of children with significantly better, but still impaired hearing, are much higher. It may well be that remedial programs to minimize or eliminate pragmatic deficits in this population will meet with a high degree of success.

E. Concluding Remarks

The results of this study support the position that a wide variety of pragmatic language functions can be examined reliably within the context of ongoing classroom instruction. It appears that using the procedures described in this study and comparing the results with the data gathered on normal hearing subjects, can provide preliminary information for identifying the strengths and weaknesses in the hearing impaired child's pragmatic language skills.

The research questions in this study address the need for examination of the relationships that exist between the many interactive characteristics that influence and support language acquisition. The survey nature of this study has been successful in the identification of certain pragmatic competencies as targets for further study. It has provided no conclusive evidence for any of its questions but a number of trends have been identified. The advantage of this pre-experimental design has been its ability to survey many goals at once and to provide a framework for more specific questions and tighter methodologies in future studies. It is clear that additional focussed research is necessary to determine the extent of the relationships that exist between the many linguistic, cognitive, and cultural characteristics of pragmatic language competencies.

The results of the study support the need expressed by several authors for the establishment of further exploratory and descriptive research in this area. The study indicated that in overall pragmatic language competencies, hearing impaired children, whether they are using different methods of communication, are capable of very divergent individual skills. These findings add an interesting overlay to the notion of hearing impaired children's language being delayed relative to the hearing child. It would appear from the results of this study that the delay is far from being of a global nature. Rather, certain elements of pragmatic language competency would appear to parallel that of hearing children while others exhibit the delay so frequently discussed.

By taking time to consider the implications of pragmatic research it is encouraging to note that assessment and treatment from a pragmatic framework provides an alternative to the structure of traditional language measurement and programming. Bedrosian and Willis (1987), in a clinical study, have found changes in the overall language performance of a child by focussing on communication in a functional manner without spending time on syntactic and semantic drills. Using a pragmatic assessment/treatment framework for a six month period, Bedrosian and Willis found the subject had increased the variety of topics initiated, as well as a clinically significant increase in general level of syntactic development as reflected by post-treatment mean length of utterance (MLU) and demonstrated mastery of additional morphemes. Findings such as these lend further support to those interested in studying pragmatic language competencies in general and the possible effects of pragmatic intervention.

Assessment in the area of pragmatics is still very much in the experimental stages and the knowledge of normal developmental sequences is far from complete. However, the ever increasing evidence of the importance of social language competencies, and encouraging preliminary results such as those demonstrated by Bedrosian and Willis (1987) afford the possibility of interesting educational developments for hearing impaired children.

REFERENCES

Bates, E. (1976). Language and context: The acquisition of pragmatics. New York: Academic.

Bates, E., Camaioni, L., & Volterra, W. (1975). The acquisition of performatives prior to speech. Merrill-Palmer Quarterly, 21, 205-226.

Bearison, D., & Levey, L. (1977). Children's comprehension of referential communication: Decoding ambiguous messages. Child Development, 48, 716-720.

Beattie, R. G. (1987). Conversational repairs in the speech of hearing impaired children. Unpublished research paper.

Bedrosian, J. L., & Willis, T. L. (1987). Effects of treatment on the topic performance of a school age child. Language, Speech, and Hearing Services in Schools, 18(2), 158-167.

Bloom, L., Rocissano, L., & Hood, L. (1976). Adult-child discourse: Developmental interaction between information processing and linguistic interaction. Cognitive Psychology, 8, 521-552.

Bornstein, H., Hamilton, L., Sautnier, K., & Roy, H. (1975). The signed English dictionary. Washington, DC: Gallaudet Colege Press.

Bretherton, I., & Beeghly, M. (1982). Talking about internal states: The acquisition of an explicit theory of mind. Developmental Psychology, 18, 906-921.

Bruner, J. (1975). The ontogenesis of speech acts. Journal of Child Language, 2, 1-19.

Cole, E. G., & St. Clair-Stokes, J. (1984a). Caregiver-child interactive behaviors: A clinical procedure for the development of spoken language in hearing-impaired children. British Journal of Audiology, 18, 7-16.

Cole, E. G., & St. Clair-Stokes, J. (1984b). Caregiver-child interactive behaviors: A videotape analysis procedure. Volta Review, 85, 200-216.

Cornett, R. O. (1967). Cued speech. American Annals of the Deaf, 112, 3-13.

Curtiss, S., Prutting, C. A., & Lowell, E. L. (1979). Pragmatic and semantic development in young children with impaired hearing. Journal of Speech and Hearing Research, 22, 534-552.

Dale, P. S. (1980). Is early pragmatic development measurable? Journal of Child Language, 8, 1-12.

Day, P. S. (1986). Deaf children's expression of communicative intentions. Journal of Communication Disorders, 19, 367-385.

DeHart, G., & Maratsos, M. (1984). Children's acquisition of presuppositional usages. In R. Schiefelbusch & J. Pickar (Eds.), The acquisition of communicative competence. Baltimore: University Park Press.

Dore, J. (1974). A pragmatic description of early language development. Journal of Psycholinguistic Research, 3, 343-350.

Dore, J. (1975). Holophrases, speech acts and language universals. Journal of Child Language, 2, 1-20.

Dore, J. (1977). "Oh them sheriff": A pragmatic analysis of children's responses to questions. In S. Ervin-Tripp & C. Mitchel-Kernan (Eds.), Child discourse. New York: Academic Press.

Dore, J. (1978a). Requestive systems in nursery school conversations: Analysis of talk in social context. In R. N. Campbell & P. T. Smith (Eds.), Recent advances in the psychology of language development and mother-child interactions. New York: Plenum Press.

Dore, J. (1978b). Variations in preschool children's conversational performances. In K. Nelson (Ed.), Children's language (Vol. 1). New York: Gardner Press.

Ferguson, G. A. (1981). Statistical analysis in psychology and education (5th ed.). New York: McGraw-Hill.

Duncan, J. C., & Perozzi, J. A. (1987). Concurrent validity of a pragmatic protocol. Language, Speech, and Hearing Services in Schools, 18(1), 80-85.

Gallagher, T. M., & Darnton, B. A. (1978). Conversational aspects of the speech of language-disordered children: Revision behaviors. Journal of Speech and Hearing Research, 21, 118-135.

Halliday, M. A. K. (1975). Learning how to mean: Exploration in the development of language. London: Edward Arnold.

Hoemann, H. W. (1972). The development of communicative skills in deaf and hearing children. Child Development, 43, 990-1003.

Hymes, D. (1971). Competence and performance in linguistic theory. In R. Huxley & E. Ingram (Eds.), Language acquisition: Models and methods. New York: Academic.

Ironsmith, M., & Whitehurst, G. (1978). The development of listener abilities in communication: How children deal with ambiguous information. Child Development, 49, 348-352.

Kaiser, A. P., & Warren, S. F. (1988). Pragmatics and generalization. In R. L. Schiefelbusch & L. L. Lloyd, Language perspectives: Acquisition, retardation, and intervention. Austin, TX: PRO-ED.

Kazdin, A. E. (1977). Artifact, bias, and complexity of assessment: The ABC's of reliability. Journal of Applied Behavior Analysis, 10, 141-150.

Klecan-Aker, J. S., & Lopez, B. (1984). A clinical taxonomy for the categorization of pragmatic language functions in normal preschool children. Journal of Communication Disorders, 17, 121-131.

Kretschmer, R., & Kretschmer, L. (1978). Language development and intervention with the hearing impaired. Baltimore, MA: University Park Press.

Ling, D. (1980). Integration of diagnostic information: Implications for speech training in school aged children. In J. D. Subtelny (Ed.), Speech assessment and speech improvement for the hearing impaired. Washington, DC: Alexander Graham Bell Association for the Deaf.

MacKay-Soroka, S., Trehub, S. E., & Thorpe, L. A. (1987). Deaf children's referential messages to mother. Child Development, 58, 385-394.

Marx, M. (Ed.). (1963). Theories in contemporary psychology. New York: MacMillan.

Miller, L. (1978). Pragmatics and early childhood language disorders: Communicative interactions in a half-hour sample. Journal of Speech and Hearing Disorders, 43, 419-436.

Moores, D. F. (1978). Educating the deaf. Psychology, principles, and practices. Boston, MA: Houghton Mifflin.

Mueller, E. (1972). The maintenance of verbal exchanges between young children. Child Development, 43, 930-938.

Mueller, S. (1983). An investigation in social competence using clinical and societal profiles. Unpublished master's thesis. University of California, Santa Barbara. In C. A. Prutting & D. M. Kirchner. (1987). A clinical appraisal of the pragmatic aspects of language. Journal of Speech and Hearing Disorders, 52, 105-119.

Muma, J. (1978). Language handbook. Englewood Cliffs, NJ: Prentice-Hall.

Owens, R. E. (1988). Language development: An introduction (2nd ed.). Columbus, OH: Merrill.

Pratt, M., Scribner, S., & Cole, M. (1977). Children as teachers: Developmental studies of instructional communication. Child Development, 48, 1475-1481.

Prutting, C. A. (1982). Pragmatics as social competence. Journal of Speech and Hearing Disorders, 47, 123-134.

Prutting, C. A., Bagshaw, N., Goldstein, H., Justowitz, S., & Umen, I. (1978). Clinician-child discourses: Some preliminary questions. Journal of Speech and Hearing Disorders, 43, 123-139.

Prutting, C. A., & Kirchner, D. M. (1983). Applied pragmatics, In T. M. Gallagher & C. A. Prutting (Eds.), Pragmatic assessment and intervention issues in language. San Diego, CA: College Hill Press.

Prutting, C. A., & Kirchner, D. M. (1987). A clinical appraisal of the pragmatic aspects of language. Journal of Speech and Hearing Disorders, 52, 105-119.

Roth, R. P., & Spekman, N. J. (1984a). Assessing the pragmatic abilities of children: Part 1. Organizational framework and assessment parameters. Journal of Speech and Hearing Disorders, 49, 2-11.

Roth, R. P., & Spekman, N. J. (1984b). Assessing the pragmatic abilities of children: Part 2. Guidelines, considerations, and specific evaluation procedures. Journal of Speech and Hearing Disorders, 49, 12-17.

Santrock, J. W. (1988). Children. Dubeque, IA: Wm. C. Brown.

Schirmer, B. R. (1985). An analysis of the language of your hearing-impaired children in terms of syntax, semantics, and use. American Annals of the Deaf, 3, 15-19.

Schlesinger, H., & Meadow, K. (1972). Sound and sign: Child deafness and mental health. Berkeley, CA: University of California Press.

Searle, J. (1965). What is a speech act? In M. Black (Ed.), Philosophy in America. New York: Allen & Unwin; Cornell University Press.

Shatz, M., & Gelman, R. (1973). The development of communication skills: Modifications in the speech of young children as a function of the listener. Monograph of Society for Research in Child Development, 38.

Shatz, M., Wellman, H., & Silber, F. (1983). The acquisition of mental verbs: A systematic investigation of the first reference to mental state. Cognition, 14, 301-321.

Skarakis, E. A., & Prutting, C. A. (1977). Early communication: Semantic and communicative intentions in the communication of the preschool child with impaired hearing. American Annals of the Deaf, 122, 382-391.

Snyder, L. S. (1978). Communicative and cognitive abilities and disabilities in the sensori-motor period. Merrill-Palmer Quarterly, 24, 161-180.

Spekman, N. J. (1981). The dyadic verbal communication abilities of learning disabled and normally achieving 4th and 5th grade boys. Learning Disability Quarterly, 4, 139-151.

Spekman, N. J., & Roth, F. P. (1982). Intervention framework for learning disabled children with communication disorders. Learning Disability Quarterly, 5, 429-437.

Verlaeten, M. (1985). Approache de la communication entre enfants deficients auditifs et enfants entendants lors d'actuities libres en classe maternelle. Revue Belge de Psychologie et de Pedagogie, 47, 27-33.

Wedell, J. (1975). Acquisition of signed English by deaf preschoolers: Concepts, context, and construction. Unpublished Doctoral dissertation, University of Oregon.

Wellman, H., & Estes, D. (in press). Children's early use of mental verbs and what they mean. Discourse Processes. In R. E. Owens. (1988). Language development: An introduction (2nd ed.). Columbus, OH: Merrill.

Wolery, M., Baily, D. B. Jr., & Sugai, G. M. (1988). Effective teaching: Principles and procedures of applied behavior analysis with exceptional students. Boston, MA: Allyn and Bacon.

Wood, D., Wood, H., Griffiths, A., & Howarth, I. (1986). Teaching and talking to deaf children. Chichester: Wiley.

APPENDIX A

LETTER OF PERMISSION

Department of Educational Psychology
Faculty of Education
6-102 Education North
University of Alberta
Edmonton, Alberta, T6G 2G5

December 1, 1988

Dear Parent or Guardian:

This is a letter to ask your permission to have your son or daughter participate in a research study investigating the pragmatic language competencies of preschool hearing impaired children. Specifically, the study will investigate, (a) the different types of language patterns the children speak and/or sign, (b) how these language patterns change when they communicate with different people, (c) how the children start, maintain, change, and end conversations, and (d) how the children repair a conversation when a misunderstanding has occurred.

The study will involve videotaping the children's natural classroom language in such educational activities as Sharing Time, Group Lesson, Snack Time, and Structured Play. It is necessary to videotape the sessions so that important language behaviors will not be missed. The information from this study does not pose any risk to the children and no standard treatment will be withheld. The children will not be required to complete any other tasks or tests. Thus, the study should not significantly disrupt the regular classroom routine. It has been estimated that the total data collection procedure will take three weeks.

I would like to inform you that this study has been passed by the Ethics Review Committees at the University of Alberta and the Glenrose Hospital. I can assure you that the children's names will not be used in the written research report. Furthermore, participation in the study is voluntary and you may withdraw you child at any time without fear of recrimination.

In order to insure that I am operating in accordance with your understanding and consent would you please complete and return the bottom portion of this letter. If you would like further information I may be reached at 432 5138 (W) or 482 3457 (H).

Thank you in advance for your consideration.

Sincerely, Rod Beattie, Ph.D. Candidate

I give my permission for ________________ (Child's Name) to participate in the videotaped research study--Pragmatic Language Competencies of Hearing Impaired Preschool Children. I understand that these recordings will only be used for the purposes of this study, and will only be viewed by the principal researcher, two research assistants, officials of the Glenrose Hospital, and the members of the dissertation committee.

Name: ______________________________ Date: ______________________________

Address: ____

Please return this form to the Classroom Teacher or the Coordinator of the HI Program.

APPENDIX B

SCHEDULE--COLLECTION OF LANGUAGE SAMPLES

SCHEDULE--COLLECTION OF LANGUAGE SAMPLES

Subject	Sex	Age	Language Lesson (date)	Length of Session (minutes)	Snack Time (date)	Length of Session (minutes)
1	F	3-3	89/01/24	20:10	89/01/24	21:55
2	F	3-5	89/01/24	20:10	89/01/24	21:55
3	M	4-6	89/01/30	21:51	89/01/30	20:00
4	F	4-7	89/01/30	21:51	89/01/30	20:00
5	F	5-8	89/02/13	20:27	89/02/13	15:00
6	M	5-9	89/01/13	21:05	89/02/13	15:00
7	M	4-9	89/02/22	50:12	89/02/22	25:00
8	F	5-0	89/02/16	21:04	89/02/22	25:00
Range				20:10--50:12		15:00--25:00
Mean				24:46		20:39

APPENDIX C

GENERAL ASPECTS PROTOCOL (GAP)

GENERAL ASPECTS PROTOCOL (GAP)

Subject __________ Context __________ Examiner __________ Date __________

Aspect	* Yes	No	Specific Comment
1. Teacher communicates within sensory range of subject (vocal intensity, pitch, visual field, level).	0	0	
2. Teacher communicates in a normal, unexaggerated fashion.	0	0	
3. Teacher uses amount of gesture appropriate for the age of the subject.	0	0	
4. Teacher generally avoids use of and/or elicitation of single words or signs.	0	0	
5. Teacher pauses long enough for subject to take a communicative turn.	0	0	
6. Teacher accepts communication from subject through verbal, visual, smiling, touching responsiveness.	0	0	
7. Teacher mostly communicates about events, people, and objects in the immediate environment.	0	0	
8. Teacher generally uses sentences of an appropriate length and complexity in communicating.	0	0	
9. Teacher uses audition/vision maximizing strategies.	0	0	
10. Lesson/Teaching format for context of language sample. Structured versus Open-ended activities.	S	0	

* Adapted from Cole and St. Clair-Stokes (1984a/b).

INFORMATION TO ASSIST SCORING--GAP

- the purpose of the GAP is to identify some general features of the teacher/subject communication style of discourse as it occurs in the educational environment.
- the GAP should be completed for each teacher/subject communicative environment.
- the items in the GAP will be completed by examining the videotaped interaction in order to evaluate each specified aspect.
- the completion of the GAP may require repeated viewings of the taped interactions.
- decision should be supported with comments.

APPENDIX D

PRAGMATIC PROTOCOL (PP)

PRAGMATIC PROTOCOL (PP)

Subject ____________ Context ____________ Examiner ____________ Date ______________

I. VERBAL ASPECTS	Appropriate	Inappropriate	Not Observed	Comments
A. Speech acts				
1. Speech act pair analysis	0	0	0	____________
2. Variety of speech acts	0	0	0	____________
B. Topic				
3. Selection	0	0	0	____________
4. Introduction	0	0	0	____________
5. Maintenance	0	0	0	____________
6. Change	0	0	0	____________
C. Turn taking				
7. Initiation	0	0	0	____________
8. Response	0	0	0	____________
9. Repair/revision	0	0	0	____________
10. Pause time	0	0	0	____________
11. Interruption/overlap	0	0	0	____________
12. Feedback to speakers	0	0	0	____________
13. Adjacency	0	0	0	____________
14. Contingency	0	0	0	____________
15. Quantity/conciseness	0	0	0	____________
D. Lexical selection/use across speech acts.				
16. Specificity/accuracy	0	0	0	____________
17. Cohesion	0	0	0	____________
E. Stylistic variations				
18. The varying of communicative style	0	0	0	____________
II. PARALINGUISTIC ASPECTS				
F. Intelligibility & prosodics				
19. Intelligibility	0	0	0	____________
20. Vocal intensity	0	0	0	____________
21. Vocal quality	0	0	0	____________
22. Prosody	0	0	0	____________
23. Fluency	0	0	0	____________
III. NONVERBAL ASPECTS				
G. Kinesics & proxemics				
24. Physical proximity	0	0	0	____________
25. Physical contacts	0	0	0	____________
26. Body posture	0	0	0	____________
27. Foot/leg & hand/arm movements	0	0	0	____________
28. Gestures	0	0	0	____________
29. Facial expression	0	0	0	____________
30. Eye gaze	0	0	0	____________

* Adapted from Prutting (1982).

INFORMATION TO ASSIST SCORING--PP

I. VERBAL ASPECTS

A. Speech acts

1. Speech act pair analysis
   - ability to take both the speaker and listener role appropriate to the context.

     Appropriate behaviors.
     - subject initiates directives, queries, and comments; responds to directives by complying; responds to questions with answers, responds appropriately to requests; and acknowledges comments made by the speaker. Appropriate behaviors can be verbal or nonverbal as in the case of taking appropriate action to a directive or request.

     Inappropriate behaviors.
     - subject does not initiate directives, queries, and comments; does not respond to directives, requests, or queries by the speaker; and/or does not use acknowledgements made by the speaker either nonverbally or verbally.

2. Variety of speech acts
   - relates to the variety of speech acts or what one can do with language such as comment, assert, request, promise, and so forth.

     Appropriate behaviors.
     - subject shows both appropriate use of and diversity in the number of different speech acts he/she can accomplish.

     Inappropriate behaviors.
     - subject shows inappropriate use of, or a reduced range of, different speech acts which he/she can use (e.g., a particular child whose expressive language is restricted to requests for objects with no other observed speech act types).

B. Topic

3. Selection
   - involves the ability to select a topic appropriate to the multi-dimensional aspects of context.

     Appropriate behaviors.
     - subject is able to select appropriate topics for discussion given the context and participants.

     Inappropriate behaviors.
     - subject is unable to select appropriate topics for discussion given the context and participants.

4. Introduction
   - involves the ability to introduce a new topic in the discourse.

     Appropriate behaviors.
     - subject is able to introduce new topics at appropriate times.

     Inappropriate behaviors.
     - subject is unable to initiate a new topic for discussion or introduces too many topics within a specified time limit.

5. Maintenance
    - involves the ability to maintain a coherent topic across the discourse.

      Appropriate behaviors.
        - subject is able to make relevant contributions to a topic.

      Inappropriate behaviors.
        - subject is unable to make relevant contributions to a topic.

          Note: The inability to maintain topic may frequently co-occur with a high number of new topic introductions.

6. Change
    - involves the ability to change the topic within the discourse.

      Appropriate behaviors.
        - subject is able to make smooth changes in topic at appropriate times and is able to end a topic at an appropriate place in the discourse.

      Inappropriate behaviors.
        - subject is unable to make smooth changes in topic at appropriate times and is unable to end a discussion of a topic at an appropriate place.

C. Turn taking
- involves smooth interchanges between the speaker and listener roles.

  Note: In all of the following categories, appropriate and inappropriate behavior is judged in relationship to both the speaker and listener roles in the dyad.

7. Initiation
    - involves the initiation of speech acts.

      Appropriate behaviors.
        - subject is able to initiate speech acts to address comments made by the speaker.

      Inappropriate behaviors.
        - subject makes little initiation in the conversation, which forces the partner to take on the burden of moving the conversation forward.

8. Response
    - involves responding as a listener to speech acts.

      Appropriate behaviors.
        - subject responds to comments made by the speaker.

      Inappropriate behaviors.
        - subject does not respond to comments made by the speaker which require a response.

          Note: This does not include those instances where the problem involves hearing reception.

9. Repair/revision
   - involves the ability to repair a conversation when a breakdown occurs, and the ability to ask for a repair when misunderstanding or ambiguity has occurred.

   Appropriate behaviors.
     - subject asks for clarification when a portion of the message is misunderstood and revises one's own message to facilitate understanding when the listener requests clarification.

   Inappropriate behaviors.
     - subject does not ask for a repair/clarification, or makes no response, or an inappropriate response to requests for clarification by the partner.

10. Pause time
   - refers to the time between each communicative partner's speech acts.

   Appropriate behaviors.
     - subject demonstrates appropriate length of pauses in the conversation to support timing relationships in the conversation.

   Inappropriate behaviors.
     - subject's pauses are either too long or too short and interrupt the timing relationship in the conversation.

11. Interruption/overlap
   - interruptions between speaker and listener involve violation of normal turn taking rules, and overlap refers to two people talking at once.

   Appropriate behaviors.
     - subject avoids interrupting or talking before the other partner is finished.

   Inappropriate behaviors:
     - subject's pause time is too short and results in overlap or interruptions.

12. Feedback to speakers
   - refers to verbal feedback behavior such as "yeah" and "really" or nonverbal behaviors such as head nods to show positive reactions and side to side movements to express negation or disbelief.

   Appropriate behaviors.
     - subject gives feedback to the speaker as a way of moving the conversation forward.

   Inappropriate behaviors.
     - subject provides little or no feedback to the speaker.

13. Adjacency
   - refers to utterances that occur immediately after the partner's turn.

   Appropriate behaviors.
     - the sequence of utterances follows an alternating progression between the participants in the conversation.

   Inappropriate behaviors.
     - balance of speaker time is uneven and does not show an alternating progression between the participants.

14. Contingency
    - refers to utterances that share the same topic with a preceding utterance and that add information to the previous communicative acts.

      Appropriate behaviors.
        - subject's utterances are related to the topic of the preceding utterance and adds information to the discourse.

      Inappropriate behaviors.
        - subject's utterances are unrelated to the topic of the preceding utterances and do not add information to the discourse.

15. Quantity/conciseness
    - refers to the fact that the contributions should be as informative as required but not too informative.

      Appropriate behaviors.
        - subject makes relevant and informative comments.

      Inappropriate behaviors.
        - subject is noted to produce comments that are not relevant to the discourse or lack sufficient information.

D. Lexical selection/use across speech acts.
  - individual descriptions to follow.

16. Specificity/accuracy
    - refers to lexical items of best fit considering the text.

      Appropriate behaviors.
        - subject makes appropriate lexical choices in order to clearly convey information in the discourse.

      Inappropriate behaviors.
        - subject is noted to overuse unspecified referents that result in ambiguous message. Subject is also noted to chose inappropriate lexical items that do not facilitate understanding.

          Eg. "The thing on top of the thing."

17. Cohesion
    - refers to the recognizable unity or connectedness of text. Types:

      (a) Reference.
        - semantic relation whereby the information needed for interpretation of some item is found elsewhere in the text.

      (b) Substitution.
        - cohesive bond is established by the use of a substitute item of the same grammatical class.

      (c) Ellipses.
        - substitution by zero and refers to sentences or clauses whose structure is such as to presuppose the missing information.

      (d) Conjunction.
        - logical relation between clauses. Lexical cohesion--achieved through vocabulary selection.

Appropriate behaviors.

- subject's speech acts exhibit relatedness and unity--a listener is able to follow the conversation, because the ideas are expressed in a logical and sequential way.

Inappropriate behaviors.

- subject's conversations are disjointed, and the utterances do not appear to be related in a logical and sequential fashion. A listener frequently misinterprets the speaker because of the ambiguity and difficulty in following the line of thinking expressed by the speaker.

E. Stylistic variations

- this refers to adaptations used by the speaker under various dyadic conditions (e.g., polite forms, different syntax, changes in vocal quality).

18. The varying of communicative style
    - as described.

    Appropriate behaviors.
    - subject is able to adjust the speech style to the listener.

    Inappropriate behaviors.
    - subject is unable to adjust the speech style to the listener or there is a mismatch between style and status of listener.

II. PARALINGUISTIC ASPECTS

F. Intelligibility and prosodics

- individual descriptions to follow.

19. Intelligibility
    - this considers the extent to which a message is understood.

    Appropriate behaviors.
    - subject's speech is clear, not noticeably different from an average speaker.

    Inappropriate behaviors.
    - subject's speech is so unclear that it causes difficulties for the listener or is significantly different from the average speaker.

20. Vocal intensity
    - this feature considers the loudness or softness of the message.

    Appropriate behaviors.
    - subject's voice is neither too loud nor too soft--pleasant sounding.

    Inappropriate behaviors.
    - subject's speech is either too loud or too soft--listening is uncomfortable.

21. Vocal quality
    - this involves the resonance and/or laryngeal characteristics of the vocal tract.

      Appropriate behaviors.
        - subject's voice is appropriate in quality and not significantly different from the average speaker.

      Inappropriate behaviors.
        - subject has a quality of speech that is inappropriate to age or sex, and interferes with communication.

22. Prosody
    - this refers to the intonation and stress patterns of the message, which is a function of variations in loudness, pitch, and duration.

      Appropriate behaviors.
        - subject shows an appropriate use of intonation, stress, and pitch to support the communicative/linguistic intention of the message.

      Inappropriate behaviors.
        - subject's speech acts lack the prosodic variation that supports affect and the linguistic aspects of the message.

23. Fluency
    - this refers to the smoothness, consistency, and rate of the message.

      Appropriate behaviors.
        - subject's speech is not marked with breaks or blocks which interfere with communication.

      Inappropriate behaviors.
        - the breaks or blocks in the subject's speech interferes with communication.

III. NONVERBAL ASPECTS

G. Kinestics and proxemics
- individual descriptions to follow.

24. Physical proximity
    - this refers to the distance between the speaker and listener.

      Appropriate behaviors.
        - the distance between partners is "natural" and facilitates dialogue.

      Inappropriate behaviors.
        - the distance between partners is either to close or too removed. Thus the interpersonal/social aspects of communication are affected or accurate reception is difficult.

25. Physical contacts
    - this refers to number of times and the placement of contacts between speaker/listener.

      Appropriate behaviors.
        - subject's contact or absence of contact with the listener is appropriate to the context.

      Inappropriate behaviors.
        - subject's contact with the listener violates "personal space" .

26. Body posture
- this refers to stance and has been categorized into...
  - (a) Forward lean.
    - when the speaker or listener moves away from a 90-degree angle toward the other person.
  - (b) Recline.
    - a slouching down from waist and moving away from the partner.
  - (c) Side to side.
    - when a persons moves to the right or left.

    Appropriate behaviors.
      - subject's stance is unobtrusive and does not affect dialogue.

    Inappropriate behaviors.
      - subject's stance is inappropriate so that the speaker or listener is detracted from the content of the message.

27. Foot/leg and hand/arm movements
- refers to any movement of the foot/leg or hand/arm (touching self or moving an object or touching part of the body, clothing, or self).

  Appropriate behaviors.
    - subject's movements, if evident, are unobtrusive and do not negatively affect communication.

  Inappropriate behaviors.
    - subject's movements detract from the content of the message for either the speaker or listener.

28. Gestures
- movements that support, complement, or replace verbal behavior.

  Appropriate behaviors.
    - subject's gestures aid in regulating discourse and may supplement or support linguistic aspects of the message.

  Inappropriate behaviors.
    - subject's gestures detract from the content of the message rather than supporting and regulating the discourse.

29. Facial expression
- refers to facial features--in positive expressions the corners of the mouth turn upward; in a negative expression the corners of the mouth turn downward; in a neutral expression the face is resting.

  Appropriate behaviors.
    - subject's facial expressions aid in regulating discourse and may supplement or support the linguistic aspects of the message.

  Inappropriate behaviors.
    - subject's facial expression detracts from the content of the message rather than supporting and regulating the discourse.

30. Eye gaze
    - refers to where the eyes are pointing--generally one looks directly at the other's face in a conversation--thus mutual gaze is when both members of the dyad look at the other.

    Appropriate behaviors.
    - subject's eye gaze aids in regulating discourse and supplements or supports the linguistic aspects of the message.

    Inappropriate behaviors.
    - subject's eye gaze detracts from the content of the message rather than supporting and regulating the discourse.

APPENDIX E

TRANSCRIPTION GUIDELINES

TRANSCRIPTION GUIDELINES

I. GENERAL INFORMATION

- the communicative intentions, vocal/nonvocal (utterance, gesture, facial, expression, body movement, sign or vocalization/verbalization) of the subject, teacher, and others were included, and arranged to show their temporal sequence, in the transcript.
- the transcript did not completely take the place of the original recording for coding purposes, however, the transcript did present the material in an efficient fashion, and the tape was only used to clarify points of uncertainty when scoring the checklists.

II. TRANSCRIPTION CONVENTIONS

A. Order

- the videotapes were viewed as soon as possible after recording. Brief notes and a rough transcription of obscure parts were made.
- the sentence-per-line convention ensured efficient identification of the sample's components.
- within each speaker, a new line per CI simplified later counting procedures.

B. Margins/Columns

- the left-hand margin was reserved for time designation as noted on the videotape.
- the first indent from the left-hand margin was reserved for the subject's CIs. In this study the subject's were by the identified by the ID numbers "S1" through "S8"..
- the second indent from the left-hand margin was reserved for the teacher or adult who was in charge of the session. The adult figure was identified by the letter "T".
- the third indent from the left-hand margin was used to record the remaining participants in the context--generally a single letter identified these participants.

C. Script Codes & Conventions

- capital letters were not generally used at the beginnings of utterances, but they were kept for ease of reading proper names, abbreviations, and the pronoun (I).
- a period (.), question mark (?) and exclamation mark (!) were used at the end of a vocal utterances if appropriate.
- a comma (,) was used in an utterance to show utterance timing and to avoid possible confusion in reading the transcript.
- circumflexes (^^^) were used at points where vocal or sign utterances were not in parallel forms within contexts while simultaneous communication was being used.
  - vocal utterances were recorded in regular font.
    Example: I want the toy.
  - sign utterances were recorded in regular font, but enclosed in slashes.
    Example: /I want the toy/

- fingerspelled utterances were recorded in regular font--capital letters.
  Example: /are there any CAVITIES/
- round brackets ( ) were used to enclose information important to the conversation.
  Example: (points to self)

- a series of three periods "..." indicated...
  (a) a relationship between utterance and information contained in round brackets.
  Example: (nod -ive, plus)... I'm not a boy.
  (b) unfinished CIs.
  Example: down the...
  (c) carrier phrases.
  Example: say..., show me the..., tell me...

D. Identification of CIs

- tag questions were considered as 2 CIs.
  Example: ___ He's already hot for this one...
  ___ I guess.

- questions with a name tag were considered as 2 CIs.
  Example: ___ how about you?...
  ___ M------.

- repetition of a sentence fragment of approximately 2 words/syllables or less (generally non meaningful) was kept as one CI.
  Example: ___ that's white, white.
  or ___ I have white pants, white pants.
  or ___ put on boy, on boy.

- repetition of a sentence of more than 2 words (generally meaningful) was considered to be two CIs.
  Example: ___ on boy's head...
  ___ on boy's head.
  or ___ I want boy...
  ___ I want boy.

- long narratives, joined by conjunctions were divided into separate CIs if each segment of the utterance was meaningful.
  Example: ___ I was getting in the car...
  ___ and I went outside...
  ___ and tried the car door...
  ___ and it was stuck.

- utterances in a series generally stayed as one CI.
  Example: ___ she wore here hearing aids all day Friday, all day Saturday, and all day Sunday.

- politeness markers were considered as separate CIs.
  Example: ___ may I have some cheese...
  ___ please.

APPENDIX F

EXAMPLES OF TRANSCRIPTS

EXAMPLE OF TRANSCRIPT--SUBJECT IN ORAL PROGRAM

S1 - Lesson Time (0000) to (1000)--89/02/24--Part 1.

0000 S1 1 (unintel. sylls., plus waves hand at M2 in a dismissal fashion after T tells S1 to tell M2 something).

M2 1 (poor production to S1)... at home mom, at home... (plus, nod +ive).

T 1 M----'s mom is working.
2 M----'s mom is working at home.

M2 2 (nod +ive).

T 3 M----'s mom could not come today... (plus, nod -ive).
4 M----'s mom is working at home, at home.
5 (after organizing materials)... ok.
6 (aside to TA--comment about materials to be used).
7 (present figure for S1 to view, plus)... who is this?
8 (present figure for A and M2 to view, plus)... who is this?

S1 2 (pointing to self, nod -ive, plus several unintel. sylls.).

T 9 (pointing to S1, nod -ive, plus)... you're not a boy.

M2 3 (nod -ive).

T 10 (pointing to self, nod -ive, plus)... I'm not a boy.

S1 3 (point to self, nod -ive, plus several unintel. sylls. representing a better approx. of "I'm not a boy").

T 11 (point to S1, nod -ive, plus)... you're not a boy.
12 (point to self, nod -ive, plus)... I'm not a boy.
13 (pointing to A, plus)... A----- is a boy.

M2 4 (nod -ive, recognizes joke).

T 14 (rising intonation, pointing to A, plus)... A----- is a boy?

TA 1 (to A)... not a boy.

T 15 (aside to TA about A's level of involvement).
0100 16 (to S2, rising intonation)... A----- is a boy?
17 (moves A's hands, plus unintel. sylls. urging A to "look or wake up").

A 1 (buries head in hands on table).

EXAMPLE OF TRANSCRIPT--SUBJECT IN SIGN ASSIST PROGRAM

S7 - Lesson Time (2830) to (3830)--89/02/22--Part 1.

2830 TA 1 (to E1, wave, plus)... bye.

E1 1 (to TA, wave, plus)... bye.

S7 1 (to TA, wave).

T 1 (to S7, E1, & E2)... you can sit down there.
/you can sit down there/
2 (aside to self & TA)... there, here.
3 (aside to self & TA)... lets see if anyone else would like to be the dentist now.
4 uhm who wants to be the dentist now?
/^^^^ who wants to be the dentist now/

S7 2 (2 unintel. sylls., repeated 2x, plus)... /my, my/
3 (1 unintel. syll., nod +ive, plus)... /me/

T 5 /me/
6 (rising intonation, plus)... you want to be the dentist?
/you want to be the dentist/

S7 4 (nod +ive, unintel. sylls., plus)... /my dentist/

T 7 (rising intonation, plus)... the dentist?
/the dentist/

S7 5 (nod +ive, plus unintel. syll.)... /my, my, my/

2900 T 8 ok.
/ok/

S7 6 (points to TA).

T 9 say..
/say/
10 I want the shirt.
/I want the shirt/

S7 7 (unintel. syll., plus)... /I want shirt/

E1 2 (laughs when TA puts shirt over S7's head).

T 11 (to E1 & E2)... ok who is the dentist?
/ok who is the dentist/

APPENDIX G

COMMUNICATIVE INTENTIONS--RANGE (CI RANGE)

COMMUNICATIVE INTENTIONS--RANGE (CIRANGE)

Subject ____________ Context ____________ Examiner ____________ Date ____________

Communicative Intention		Reference No. (from transcript)																			
A. CONVERSATIONAL DEVICE																					
1.	Check																				
2.	Comment																				
3.	Direct Attn (obj)																				
4.	Direct Attn (self)																				
5.	Imitate																				
6.	Offer																				
7.	Polite																				
B. DESCRIPTION																					
8.	Event																				
9.	Identity																				
10.	Location																				
11.	Possession																				
12.	Property																				
C. REQUEST																					
13.	Action																				
14.	Object																				
15.	"Wh"																				
16.	Yes/no																				
D. PERFORMANCE																					
17.	Claim																				
18.	Game																				
19.	Greet																				
20.	Joke																				
21.	Pattern																				
22.	Protest																				
23.	Role play																				
24.	Scold																				
25.	Warn																				
E. RESPONSE																					
26.	Agree/Disagree																				
27.	Attend																				
28.	Attribute																				
29.	Clarify																				
30.	Explain																				
31.	Express/Evaluate																				
32.	Statement																				
33.	"Wh"																				
34.	Yes/No																				
F. UNINTERPRETABLE																					
35.	Unknown																				

* Adapted from Day (1986)